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HILL AIR FORCE BASE, UTAH

84406

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**PROPELLANT
SURVEILLANC REPORT
LGM-30F & G STAGE I
PHASE A, SERIES II
TP-H1011**

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PROPELLANT LABORATORY SECTION

MAGCP REPORT

NR 271(73)

JULY 1973

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④ PROPELLANT SURVEILLANCE REPORT

LGM-30 F & G STAGE I

PHASE A, SERIES "I", TP-H1011

Submitted By

⑩ *John A. Thompson*
JOHN A. THOMPSON, Chemist
Component & Combustion Unit

Recommended Approval By

John D. Hopper
JOHN D. HOPPER, Chemist
Component & Combustion Unit

Ronald F. Larsen
RONALD F. LARSEN
Propellant Laboratory Section

Approved By

Charles M. Bock
CHARLES M. BOCK, Chief
Physical Sciences Lab Branch
Directorate of Maintenance

⑪ July 1973

⑫ 247-1

Industrial Laboratory Division
Directorate of Maintenance
Ogden Air Materiel Area
United States Air Force
Hill Air Force Base, Utah

ABSTRACT

This report contains propellant test results from cartons of TP-H1011 bulk propellant representing LGM-30 F and G First Stage Minuteman Motors. This report uses a statistical approach to analyze the bulk carton propellant. Testing was accomplished in accordance with MMEMP Project M-41785M, DO 12 Nr 2MP-155P, 72NE068.

An analysis of all parameters indicates that seven years of aging at 77°F temperature has not greatly affected the properties of the propellant. No potential problems are expected in the propellant for at least two years past the oldest data point.

Each point on the regression plot represents all samples at that particular age. The number of samples at each point is indicated on the sample size summary sheet on the page accompanying each regression plot. The data range at any age can be found by suitable inquiry of the G085 System.

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GLOSSARY OF TERMS AND ABBREVIATIONS

Aging Trend	A change in properties or performance resulting from aging of material or component
CSA	Cross Sectional Area
E	Modulus (psi), defined as stress divided by strain along the initial linear portion of the curve
EB	End Bonded
EGL	Effective Gage Length
em	Strain at maximum stress
er	Strain at rupture
DB	Dogbone
Degradation	Gradual deterioration of properties or performance
"F" ratio	The ratio of the variance accounted for by the regression function to the random unexplained variance. The regression function having the most significant "F" ratio is used for plotting data. The ratio is also used in detecting significant changes in random variation between succeeding time points.
JANNAF	Joint Army, Navy, NASA, Air Force Committee
MAGCP	Propellant Lab Section at OOAMA
OOAMA	Ogden Air Materiel Area, Air Force Logistics Command
Regression Equation	The general form of the regression equation is $Y = a + bx$
Regression Line	Line representing mean test values with respect to time
S_b	Standard error of estimate of the regression coefficient
S_e or $S_{Y.X}$	Standard deviation of the data about the regression line

GLOSSARY OF TERMS AND ABBREVIATIONS (cont)

SM	Maximum Stress
Sr	Stress at rupture
Standard Deviation (S_Y)	Square root of variance
Strain Rate	Crosshead speed divided by the EGL
"t" test	A statistical test used to detect significant differences between a measured parameter and an expected value of the parameter (determines if regression slope differs from zero at the 95% confidence level)
Variance	The sum of squares of deviations of the test results from the mean of the series after division by one less than the total number of test results
3 Sigma Band	The area between the upper and lower 3 sigma limit. It can be expected that 99.73% of the inventory represented by the test samples would fall within this range assuming that the population is normally distributed.
90-90 Band	It can be stated with 90% confidence that 90% of the inventory represented by the test samples would fall within this range assuming that the population is normally distributed.

LIST OF REFERENCES

<u>Report Nr</u>	<u>Title</u>	<u>Report Date</u>
	LGM-30 First Stage, Wing I Test Reports	
29A	Test Report (Missile in silo)	13 Jan 64
29B	Zero Time Test Results	29 Jan 64
29C	Zero Time Test Results (Supplement 1)	30 Mar 64
29D	Zero Time Test Results (Aft Closure)	9 Jun 64
29E	Zero Time (Aft Closure Supplement 1)	24 Jun 64
29F	ATP Phase I Test Results	30 Mar 65
29G	ATP Phase I Test Results	19 Aug 65
29H	ATP Phase I Test Results	10 Sep 65
32A	Zero Time, Wings II-V Test Results	17 Mar 65
32B	Zero Time, Wings II-V Test Results (Aft Closure)	18 Mar 65
32C	ATP Phase I, Wings II-V Test Results	3 Nov 65
49	ATP Phase I, Wings II-V (First Group)	18 Mar 66
53	ATP Phase I, Wings II-V (Second Group)	22 Apr 66
55	ATP Phase I, Wings II-V (Third Group)	29 Apr 66
58	ATP Phase I, Wings II-V (Fourth Group)	6 May 66
61	ATP Phase I, Wings II-V (Fifth Group)	10 Jun 66
66	ATP Phase I, Wings II-V (Sixth Group)	22 Jul 66
76	ATP Phase II, Wing I Test Results	24 Jan 67
78	Zero Time, Wing VI Test Results	3 Feb 67
104	ATP Phase I, Wing VI (First Group)	12 Oct 67
118	ATP Phase II, Wings II-V (First Group)	5 Mar 68
126	ATP Phase II, Wings II-V (Second Group)	11 Apr 68
130	ATP Phase II, Wings II-V (Third Group)	3 May 68

LIST OF REFERENCES (cont)

<u>Report Nr</u>	<u>Title</u>	<u>Report Date</u>
162	ATP Phase I, Wing VI (Second Group)	30 Sep 69
176	ATP Phase II, Wing VI (First Group)	15 Apr 70
181	ATP Phase III, Wing I	7 May 70
185	ATP Phase I, Wing VI (Third Group)	22 Jun 70
195	ATP Phase III, Wings II-V (Retest)	29 Oct 70
223	Surveillance Report LGM-30 Stage I (TP-H1011)	Sep 71
239	Surveillance Report LGM-30 Stage I (TP-H1011 and TP-H1043)	Apr 72
258	Surveillance Report LGM-30A & B Stage I, (TP-H1011)	Nov 72
268	Surveillance Report LGM-30A & B Stage I, (TP-H1011)	May 73

INTRODUCTION

A. PURPOSE:

Quality assurance tests have been conducted for eleven years on First Stage LGM-30A, B, F and G Minuteman Motor propellant blocks to evaluate the effects of aging on TP-H1011 propellant. This report contains only those tests conducted on propellant from LGM-30F and G as instructed in Test Directive GTD-1C, Amendment 1, LGM-30 First Stage Operational Propellant Laboratory Testing.

Statistical analysis of the tests performed should provide early warning if serious degradation trends occur. Annual evaluation of the propellant provides data for input into engineering reliability for service life predictions. Testing was performed in accordance with MEMEP Directive GTD-1C, Amendment 1.

B. BACKGROUND:

LGM-30F and G testing was started in 1966 with phase testing at 24 month intervals (Report Numbers 78 - zero time; 104, 162, 185-Phase I, 176, 239, 257-Phase II). Report Number 257 was the first time that LGM-30F and G data were reported in statistical analysis by itself. The present report is a continuation of testing and statistical analysis by the G085 system.

Zero time testing for LGM-30A, B, F and G was started as soon as possible after receipt of the propellant by MAGCP. Data from these tests were used to establish a base line for each test parameter.

The LGM-30F and G propellant test matrix (Table 1) is used to determine the number of specimens to be taken from each propellant loaf and the specific test or tests to which these specimens are to be subjected. Very low rate and low rate tensile specimens are taken on all LGM-30F and G blocks. Specimens for other physical and combustion tests are taken from every third (LGM-30F and G) block.

TABLE 1

SAMPLE PLAN

The Procedure for determining tests to be performed on propellant batch samples of LGM-30 F & G First Stage Motors are as follows:

1. Divide the USAF motor serial numbers into three groups by dividing the last three digits of each serial number by three to determine the remainder integer, e.g., $154 \div 3 = 51$ with a remainder integer of 1.
2. Use the remainder integer to enter the following matrix to determine the group of tests to be performed on the forward, middle, and aft batch samples associated with a particular motor serial number.

TP-H1011 PROPELLANT BATCH SAMPLE	GROUP MATRIX		
	GROUP I	GROUP II	GROUP III
Forward	1	2	0
Middle	0	1	2
Aft	2	0	1

Each group will receive the following tests:

TEST MATRIX		
GROUP I	GROUP II	GROUP III
High Rate Triaxial	Dynamic Response	High Rate Hydrostatic
Creep	Stress Relaxation	Sol Gel
Biaxial Low Rate	Burning Rate	DSC
TCLC	Heat of Explosion	TGA
Hardness	Pressure Time	DTA
Ignitability		Impact

NOTE: Low Rate and Very Low Rate Tensile tests are performed on all blocks.

STATISTICAL APPROACH

Linear regression analysis was used as the method of data evaluation. Data from different time periods were used to establish a least squares trend line for the data. The variance about the regression line, obtained using individual values of the dependent variable, was used to compute a tolerance interval such that at the 90% confidence level, 90% of the sample distribution falls within this interval. This tolerance interval was extrapolated to a maximum of 24 months. The "t" values and the significance of this statistic, which are reported for each regression model, give an indication of the "statistical significance" of the slope of the trend line as compared to a line of zero slope. Data were plotted by the computer. The "y" axis is computed so that the values at one inch intervals are peculiar to the data spread of the parameter tested.

TEST RESULTS

VERY LOW RATE TENSILE:

The strain properties are decreasing with the stresses and modulus increasing. All of the regressions show a statistically significant increase or decrease, but should not affect the propellant serviceability at this time (Figures 1 thru 5).

LOW RATE BIAXIAL TENSILE:

Strain at maximum stress, maximum stress, and strain at rupture show a statistically significant increase. However, it should be noted the slope of the curves is relatively flat. Stress at rupture and modulus show no significant trend (Figures 6 thru 10).

LOW RATE TENSILE:

For all parameters except strain at rupture a statistically significant increase is shown (Figures 11 thru 15).

HIGH RATE TRIAXIAL:

Strain at maximum stress and strain at rupture show no significant trends. Maximum stress, stress at rupture, and modulus show a statistically significant trend (Figures 16 thru 20).

HYDROSTATIC TENSILE:

No significant trend is shown except for modulus. The modulus trend is decreasing, but the slope is gradual and should not present a problem at this time (Figures 21 thru 25).

TENSILE TESTING SUMMARY:

Stresses and modulus are gradually increasing with age as expected. Very low rate tensile strain shows a gradual decrease. Low rate tensile strain at rupture shows no significant change; all other strain graphs show a gradual increase. No operational problems are indicated in the propellant at this time.

CREEP COMPLIANCE:

The regressions show a decreasing trend except for strain at rupture which shows an increase. This agrees well with the tensile results (Figures 26 thru 30).

STRESS RELAXATION:

Data were obtained at temperatures of -65, -40, 20, 77, 100, 120, 140, 160 and 180°F (Figures 31 thru 66). At -65, -40 and 20°F the trends show a decrease except for stress relaxation modulus at -40 degrees F at 10 sec (Figure 35) and 20 degrees F at 1000 sec (Figure 42). For all other temperatures no significant changes are shown except for stress relaxation modulus at 120 degrees F, 10 and 50 sec (Figures 51 and 52) and 140 degrees F 1000 sec (Figure 58).

CONSTANT STRAIN:

The regression analysis indicates a statistically significant downward trend of the rupture strain although the slope is gradual (Figure 67).

DYNAMIC RESPONSE:

The storage shear modulus at 200 and 500 Hz shows a decrease in the slope of the regression line. This slope is closer to zero or flat than in the previous report (Figures 68 thru 71).

The loss tangent at 200 and 500 Hz shows a gradual increase in the slope of the regression line (Figures 68 thru 71).

FAILURE ENVELOPE:

The majority of the points are reasonably close to the curve (Figure 72).

DTA:

The endotherm shows a statistically significant increase. However, the slope of the regression line is relatively flat.

The first exotherm shows a statistically significant decrease and the second and third exotherms show no significant change.

The ignition temperature shows a statistically significant increase.

Where a significant change is shown the slope of the regression line is gradual (Figures 73 thru 77).

HEAT OF EXPLOSION:

Although the regression slope is statistically significant, the slope of the regression line is close to zero and therefore, no operational problems are expected at this time (Figure 78).

PRESSURE TIME:

The data are widely scattered on both the time to maximum pressure and the maximum pressure regressions. No aging trends are evident (Figures 79 and 80).

BURNING RATE:

Although this test shows a statistically significant increase, it should be noted that if the zero time testing points were eliminated (possible post-cure) the slope of the regression line would be practically flat (Figure 81).

IGNITABILITY:

The ignition threshold shows no significant trend (Figure 82).

IMPACT SENSITIVITY:

The regression shows no significant change (Figure 83).

SHORE HARDNESS:

Very little change is occurring in the hardness (Figure 68).

SOL GEL:

The weight swell ratio, cross link density and density data show a statistically significant trend. However, the slopes are very flat and the propellant service life may be extended for at least two years from the date of last testing. The percent extractables by weight shows no significant trend (Figures 85 thru 88).

CONCLUSIONS

Seven years of aging at ambient temperature (77°F) has not greatly affected the properties of the propellant. Some test parameters indicate slight aging trends, but nothing that would adversely affect the operational characteristics of the rocket motor propellant.

From the statistical analysis, it does not appear that significant propellant degradation is occurring and the propellant reliability should not be affected for at least two years past the last data point. Since failure limits are not available for the parameters tested, this statement is based on the fact that the slopes of the regression curves are relatively close to zero or flat.

RECOMMENDATIONS

It is recommended that testing be continued on a regular basis to evaluate the effects of aging on motor propellant, and to assure that the propellant will perform as designed.

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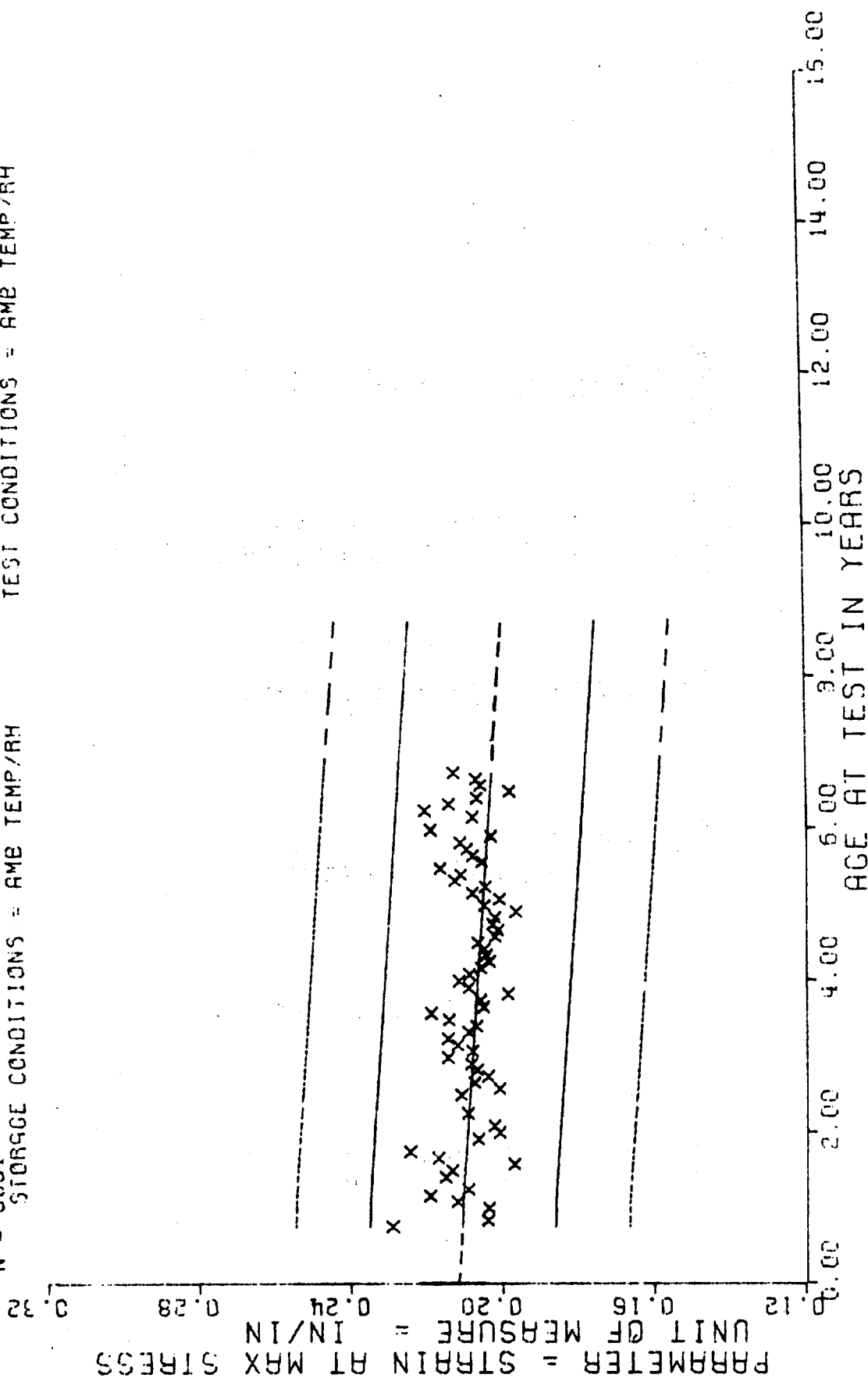
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SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
9.0	10	33.0	82	51.0	136	69.0	64
10.0	5	34.0	87	52.0	158	70.0	59
12.0	15	35.0	72	53.0	175	71.0	21
13.0	15	36.0	87	54.0	155	72.0	30
14.0	10	37.0	93	55.0	320	74.0	25
15.0	20	38.0	86	56.0	313	75.0	15
17.0	20	39.0	69	57.0	216	76.0	30
18.0	25	40.0	71	58.0	200	77.0	15
19.0	22	41.0	79	59.0	196	78.0	5
20.0	13	42.0	90	60.0	321	79.0	10
21.0	10	43.0	109	61.0	167	80.0	10
23.0	15	44.0	70	62.0	175	81.0	10
24.0	11	45.0	105	63.0	135		5,091
25.0	19	46.0	71	64.0	43		
27.0	15	47.0	127	65.0	16		
30.0	10	48.0	114	66.0	28		
31.0	41	49.0	118	67.0	21		
32.0	64	50.0	105	68.0	47		

Stage 1 Wing 6, TP-H 1011 Tensile, CHS 0.0020, EGL 3.00, CSA 0.1875 EM
Very Low Rate Tensile

$Y = (-.21200135E+00) + (-.12314975E-03) \times X$
 F = +.54595365E+02 SIGNIFICANCE OF F = SIGNIFICANT $G = +.14730136E-01$
 R = -.10302637E+00 SIGNIFICANCE OF R = SIGNIFICANT $S = +.15666783E-04$
 t = +.73633353E+01 SIGNIFICANCE OF t = SIGNIFICANT $SE = +.14653131E-01$
 N = 5091 DEGREES OF FREEDOM = 5089
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH



STAGE 1 WING 5. IP-H 1011 TENSILE, CHS 0.0020, EGL 3.00, CSA 0.1975 LM

VERY LOW RATE TENSILE

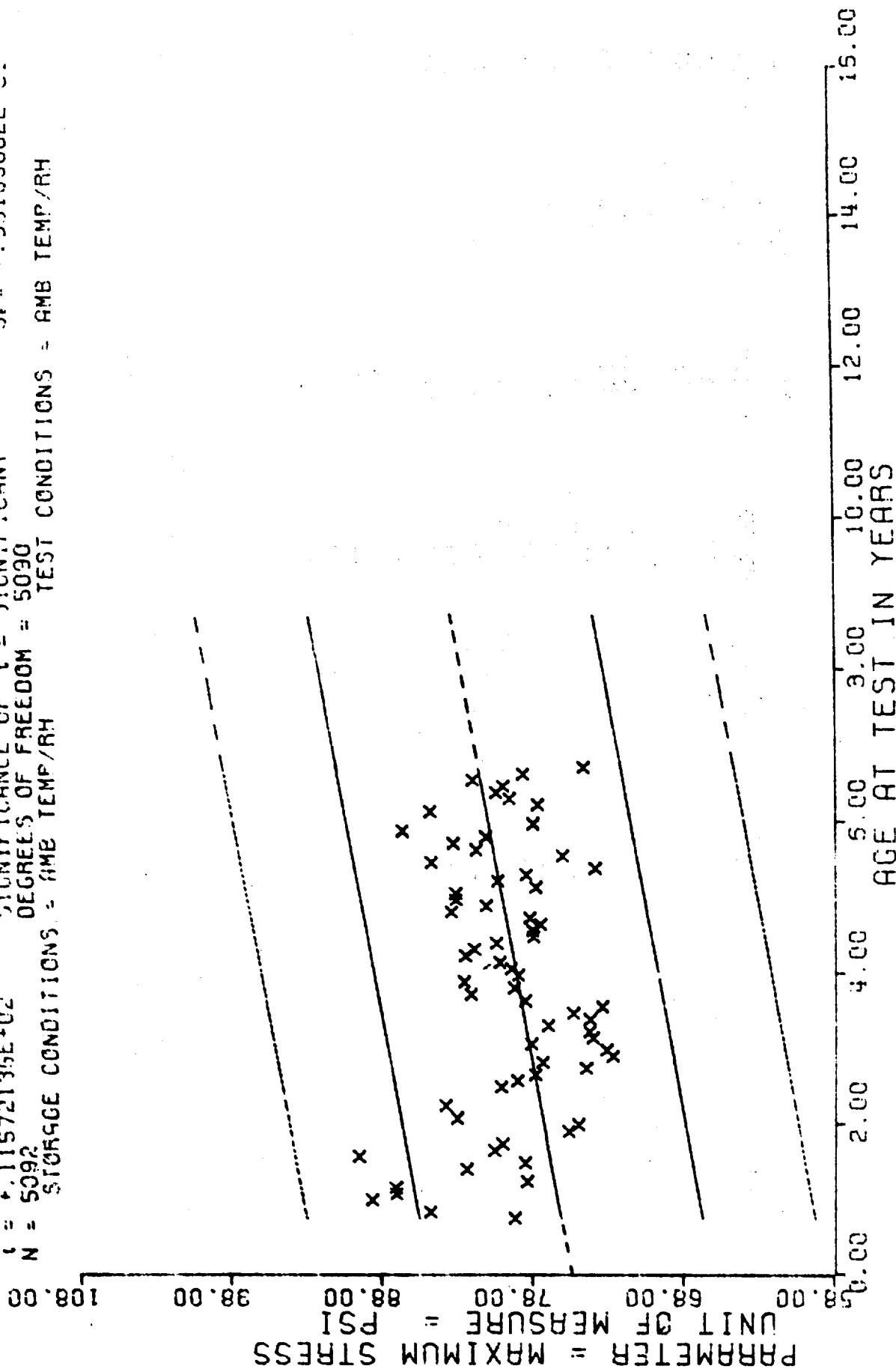
Figure 1

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
9.0	10	34.0	87	53.0	175	72.0	30
10.0	5	35.0	72	54.0	155	74.0	25
12.0	15	36.0	87	55.0	320	75.0	15
13.0	15	37.0	93	56.0	313	76.0	30
14.0	10	38.0	86	57.0	216	77.0	15
15.0	20	39.0	69	58.0	200	78.0	5
17.0	20	40.0	71	59.0	196	79.0	10
18.0	25	41.0	79	60.0	321	80.0	10
19.0	22	42.0	90	61.0	167	81.0	10
20.0	13	43.0	109	62.0	175		5,092
21.0	10	44.0	70	63.0	135		
23.0	15	45.0	105	64.0	43		
24.0	11	46.0	71	65.0	16		
25.0	19	47.0	127	66.0	28		
27.0	15	48.0	114	67.0	21		
30.0	10	49.0	118	68.0	47		
31.0	41	50.0	105	69.0	64		
32.0	64	51.0	136	70.0	60		
33.0	82	52.0	158	71.0	21		

Stage 1, Wing 6, TP-H 1011 Tensile, CSH 0.0020, EGL 3.00, CSA 0.1875 SM
Very Low Rate Tensile

$Y = (+.75536014E+02) + (+.73909300E-01) \times X$
 $F = +.13331434E+03$ SIGNIFICANCE OF F = SIGNIFICANT
 $R = +.16010931E+00$ SIGNIFICANCE OF R = SIGNIFICANT
 $t = +.11572136E+02$ SIGNIFICANCE OF t = SIGNIFICANT
 $N = 5092$ DEGREES OF FREEDOM = 5090
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH



STAGE 1 WING 5, TP-H 10:1 TENSILE, CHS 0.0020, EGL 3.00, CSA 0.1975 SM

VERY LOW RATE TENSILE

Figure 2

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
9.0	10	33.0	82	51.0	136	69.0	64
10.0	5	34.0	87	52.0	158	70.0	59
12.0	15	35.0	72	53.0	175	71.0	21
13.0	15	36.0	87	54.0	155	72.0	30
14.0	10	37.0	93	55.0	320	74.0	25
15.0	20	38.0	86	56.0	313	74.0	15
17.0	20	39.0	69	57.0	216	76.0	30
18.0	25	40.0	71	58.0	200	77.0	15
19.0	22	41.0	79	59.0	196	78.0	5
20.0	13	42.0	90	60.0	321	79.0	10
21.0	10	43.0	109	61.0	167	80.0	10
23.0	15	44.0	70	62.0	175	81.0	10
24.0	11	45.0	105	63.0	135		5,091
25.0	19	46.0	71	64.0	43		
27.0	15	47.0	127	65.0	16		
30.0	10	48.0	114	66.0	28		
31.0	41	49.0	118	67.0	21		
32.0	64	50.0	105	68.0	47		

Stage 1 Wing 6, TP-H 1011 Tensile, CHS 0.0020, EGL 3.00, CSA 0.1875 ER
Very Low Rate Tensile

$F = +.76272399E+02$ SIGNIFICANCE OF F = SIGNIFICANT $S_F = +.13116712E-01$
 $R = -.12151701E+00$ SIGNIFICANCE OF R = SIGNIFICANT $S_R = +.20455554E-04$
 $t = +.373334071E+01$ SIGNIFICANCE OF t = SIGNIFICANT $S_t = +.17334222E-01$
 $N = 5091$ DEGREES OF FREEDOM = 5089
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH

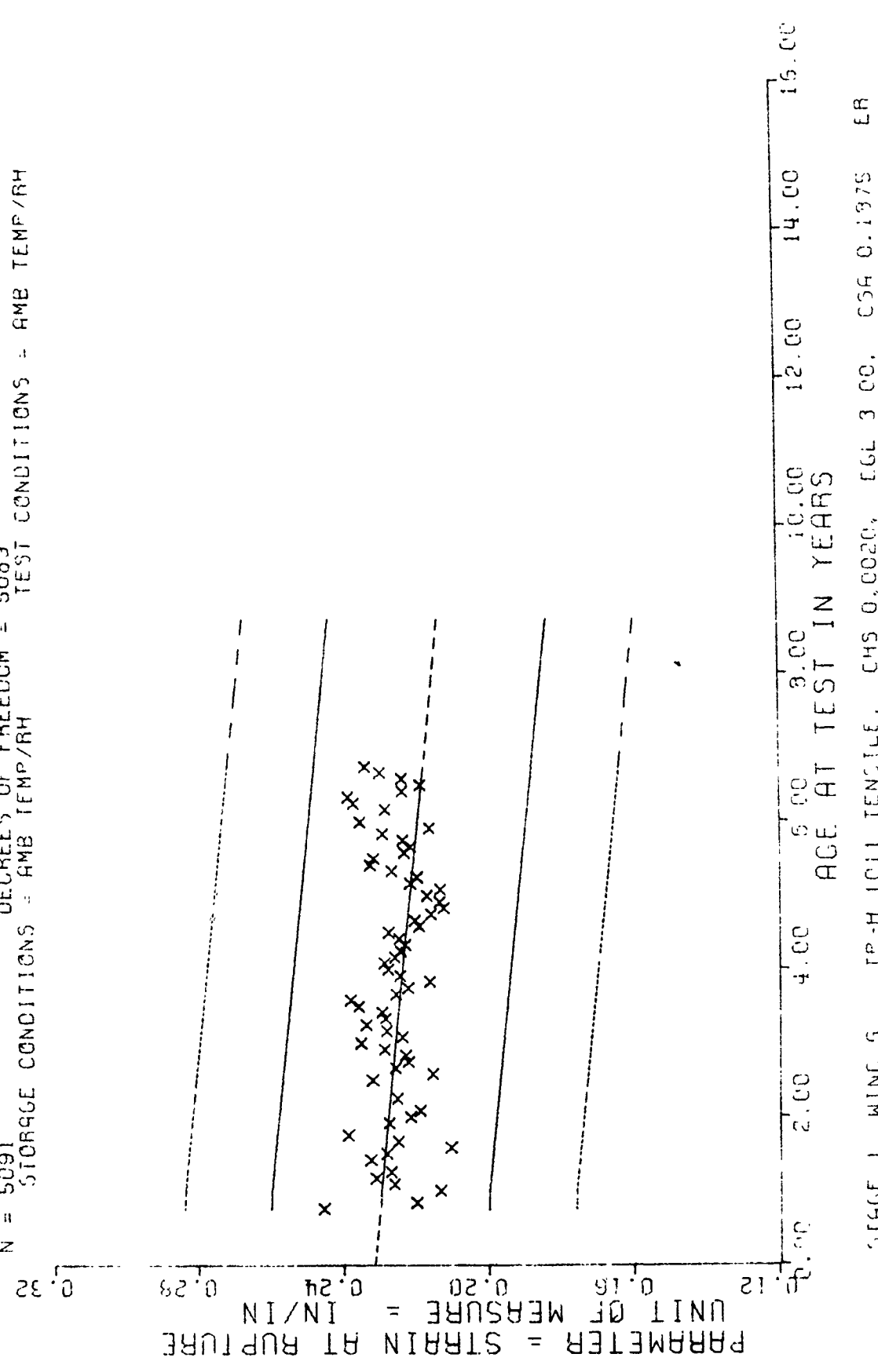


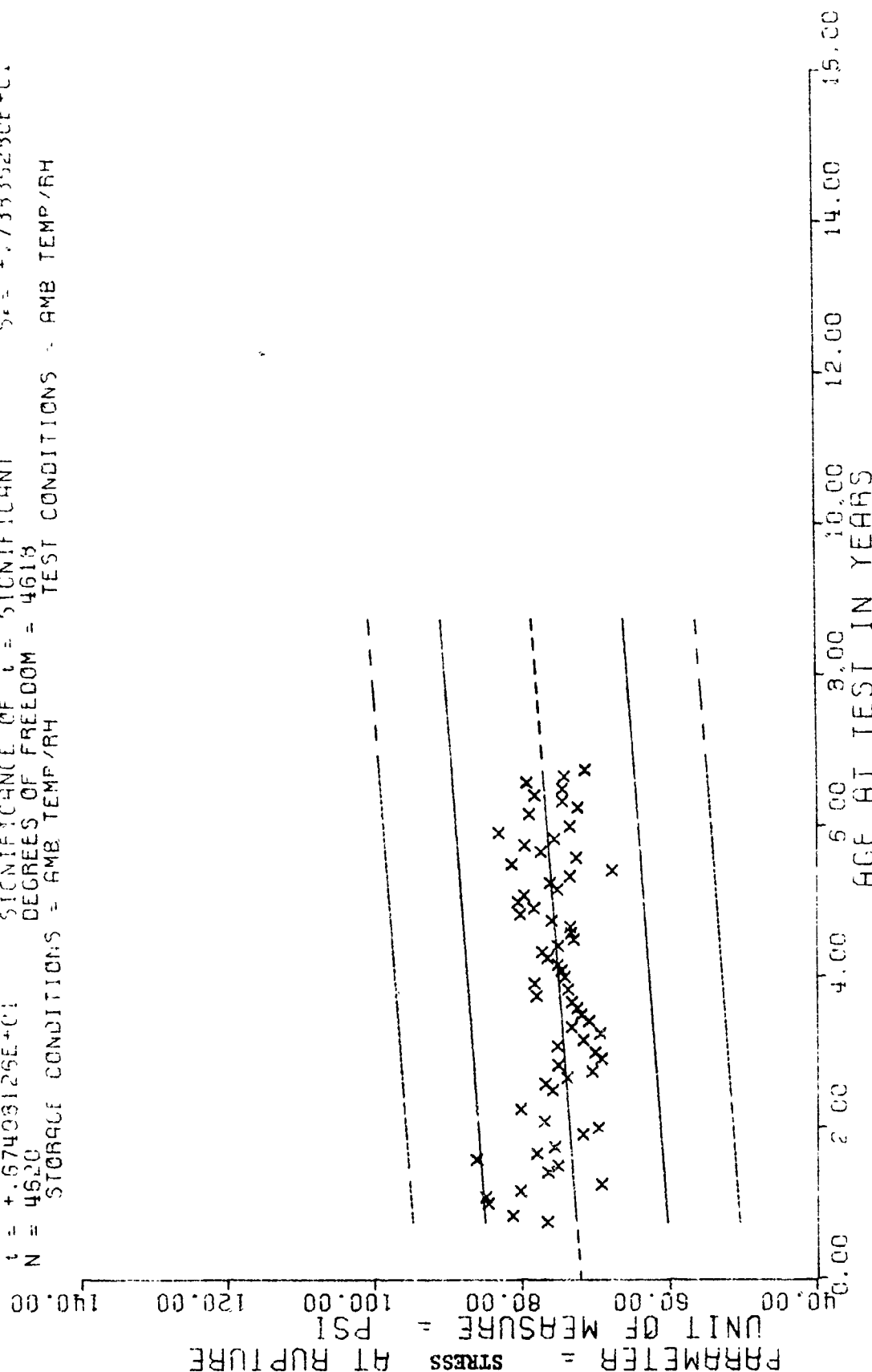
Figure 3

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
9.0	10	33.0	70	51.0	136	69.0	64
10.0	5	34.0	72	52.0	158	70.0	60
12.0	15	35.0	69	53.0	175	71.0	21
13.0	15	36.0	77	54.0	155	72.0	30
14.0	10	37.0	84	55.0	320	74.0	25
15.0	20	38.0	71	56.0	313	75.0	15
17.0	20	39.0	60	57.0	206	76.0	30
18.0	25	40.0	65	58.0	124	77.0	15
19.0	22	41.0	72	59.0	129	78.0	5
20.0	13	42.0	82	60.0	233	79.0	10
21.0	10	43.0	87	61.0	123	80.0	10
23.0	15	44.0	67	62.0	145	81.0	10
24.0	11	45.0	105	63.0	112		4,620
25.0	19	46.0	71	64.0	39		
27.0	15	47.0	127	65.0	16		
30.0	10	48.0	114	66.0	28		
31.0	35	49.0	118	67.0	21		
32.0	59	50.0	105	68.0	47		

Stage 1 Wing 6, TP-H 1011 Tensile, CSH 0.0020, EGL 3.00, CSA 0.1875 SR
Very Low Rate Tensile

$F = +.45559070E+02$ SIGNIFICANCE OF F = SIGNIFICANT $G = +.74190574E+01$
 $R = +.35840044E-01$ SIGNIFICANCE OF R = SIGNIFICANT $S = +.85943363E-02$
 $t = +.67403126E+01$ SIGNIFICANCE OF t = SIGNIFICANT $S = +.73535230E+01$
 $N = 4620$ DEGREES OF FREEDOM = 4618
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH



STAGE 1 WING 5 T-4H 1011 TENSILE, CHS 0.0020, FCL 3 00, CGA 0.1375 CR

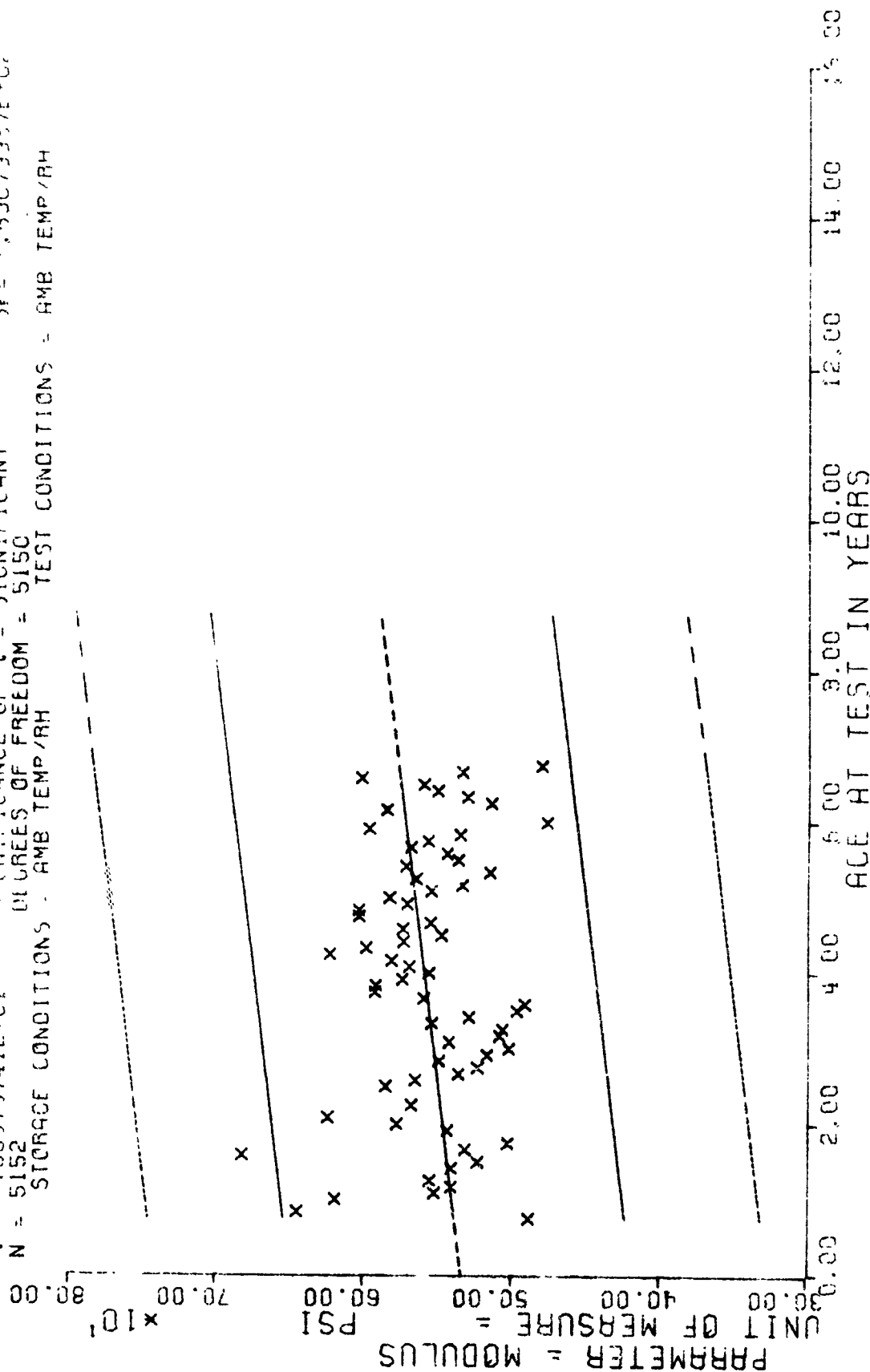
VERY LOW RATE TENSILE
Figure 4

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
9.0	10	33.0	82	51.0	136	69.0	64
10.0	5	34.0	87	52.0	158	70.0	59
12.0	15	35.0	72	53.0	175	71.0	24
13.0	15	36.0	87	54.0	155	72.0	27
14.0	10	37.0	93	55.0	320	74.0	25
15.0	17	38.0	86	56.0	315	75.0	15
17.0	20	39.0	69	57.0	214	76.0	30
18.0	25	40.0	71	58.0	200	77.0	15
19.0	22	41.0	79	59.0	223	78.0	3
20.0	13	42.0	90	60.0	345	79.0	10
21.0	10	43.0	109	61.0	170	80.0	10
23.0	15	44.0	70	62.0	180	81.0	10
24.0	11	45.0	105	63.0	151		5,152
25.0	19	46.0	71	64.0	43		
27.0	15	47.0	127	65.0	13		
30.0	10	48.0	114	66.0	28		
31.0	41	49.0	118	67.0	20		
32.0	64	50.0	105	68.0	42		

Stage 1 Wing 6, TP-H 1011 Tensile, CSH 0.0020, EGL 3.00, CSA 0.1875 MD
Very Low Rate Tensile

$F = +.44460546E+02$ SIGNIFICANCE OF F = SIGNIFICANT
 $R = +.32516063E-01$ SIGNIFICANCE OF R = SIGNIFICANT
 $t = +.66673741E+01$ SIGNIFICANCE OF t = SIGNIFICANT
 $N = 5152$ DEGREES OF FREEDOM = 5150
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH



STAGE 1 WING 5 TP-H 1011 TENSILE, CHS 0.0020, EGL 3.00, CSA 0.1975 MC

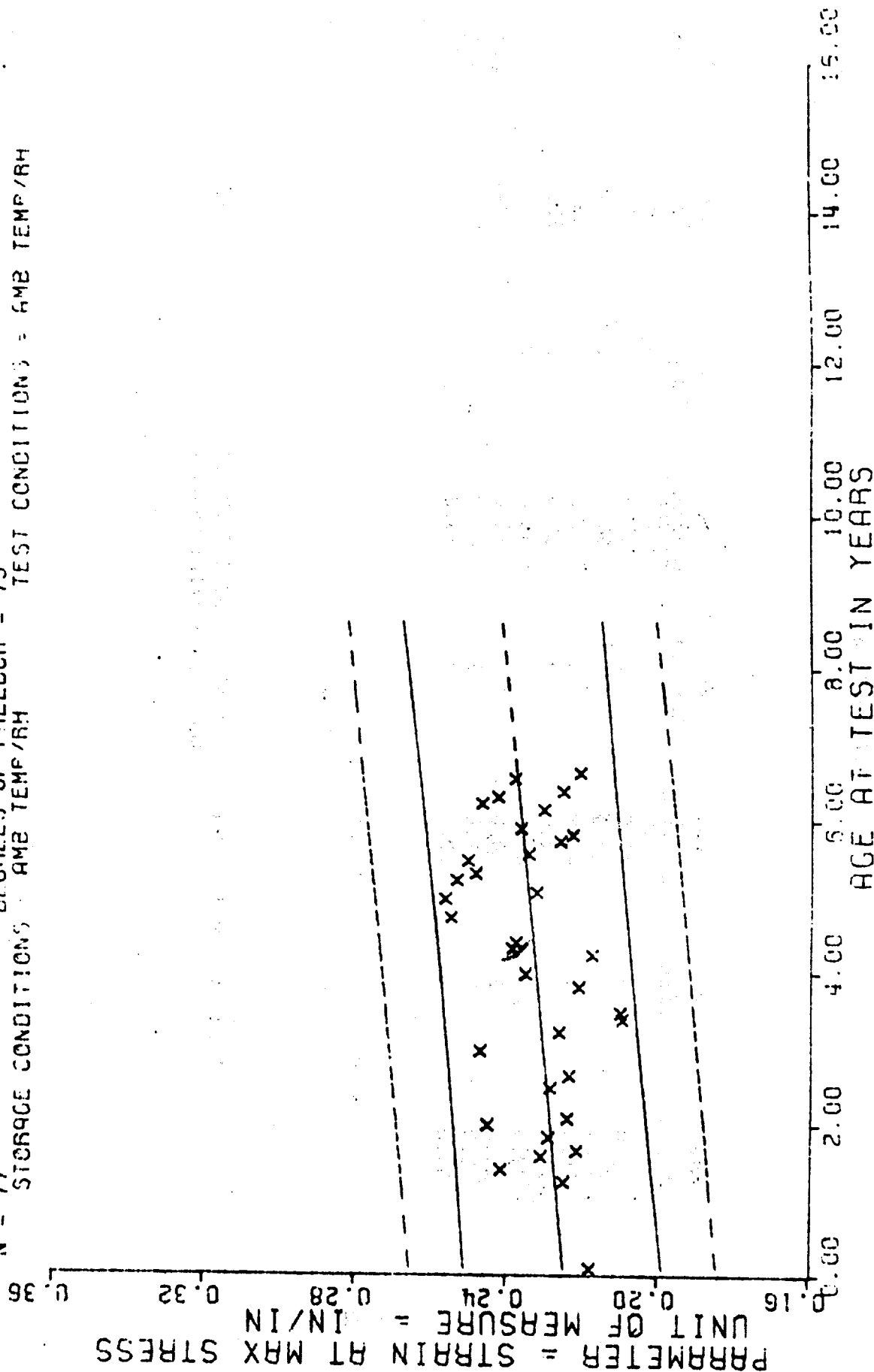
VERY LOW RATE TENSILE
Figure 5

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
1.0	1	32.0	2	53.0	2	70.0	2
15.0	2	36.0	2	57.0	2	71.0	2
17.0	2	39.0	4	60.0	2	74.0	2
19.0	2	41.0	2	61.0	2	75.0	4
20.0	2	42.0	2	63.0	2	76.0	2
22.0	2	46.0	2	64.0	2	77.0	2
24.0	2	48.0	2	66.0	2	79.0	2
25.0	2	51.0	2	67.0	2	80.0	2
30.0	2	52.0	2	69.0	4		77

Stage 1 Wing 6, TP-H 1011 Tensile, CHS 0000.2, EGL 1.75, CSA 1.8750 EM
Low Rate Biaxial Tensile

$F = +.42797919E+01$ SIGNIFICANCE OF F = SIGNIFICANT $G = +.13778654E-01$
 $R = +.23234325E+00$ SIGNIFICANCE OF R = SIGNIFICANT $S = +.73708665E-04$
 $t = +.20637657E+01$ SIGNIFICANCE OF t = SIGNIFICANT $Sr = +.13490634E-01$
 $N = 77$ DEGREES OF FREEDOM = 75
 STORAGE CONDITIONS : AMB TEMP/RH TEST CONDITIONS : AMB TEMP/RH



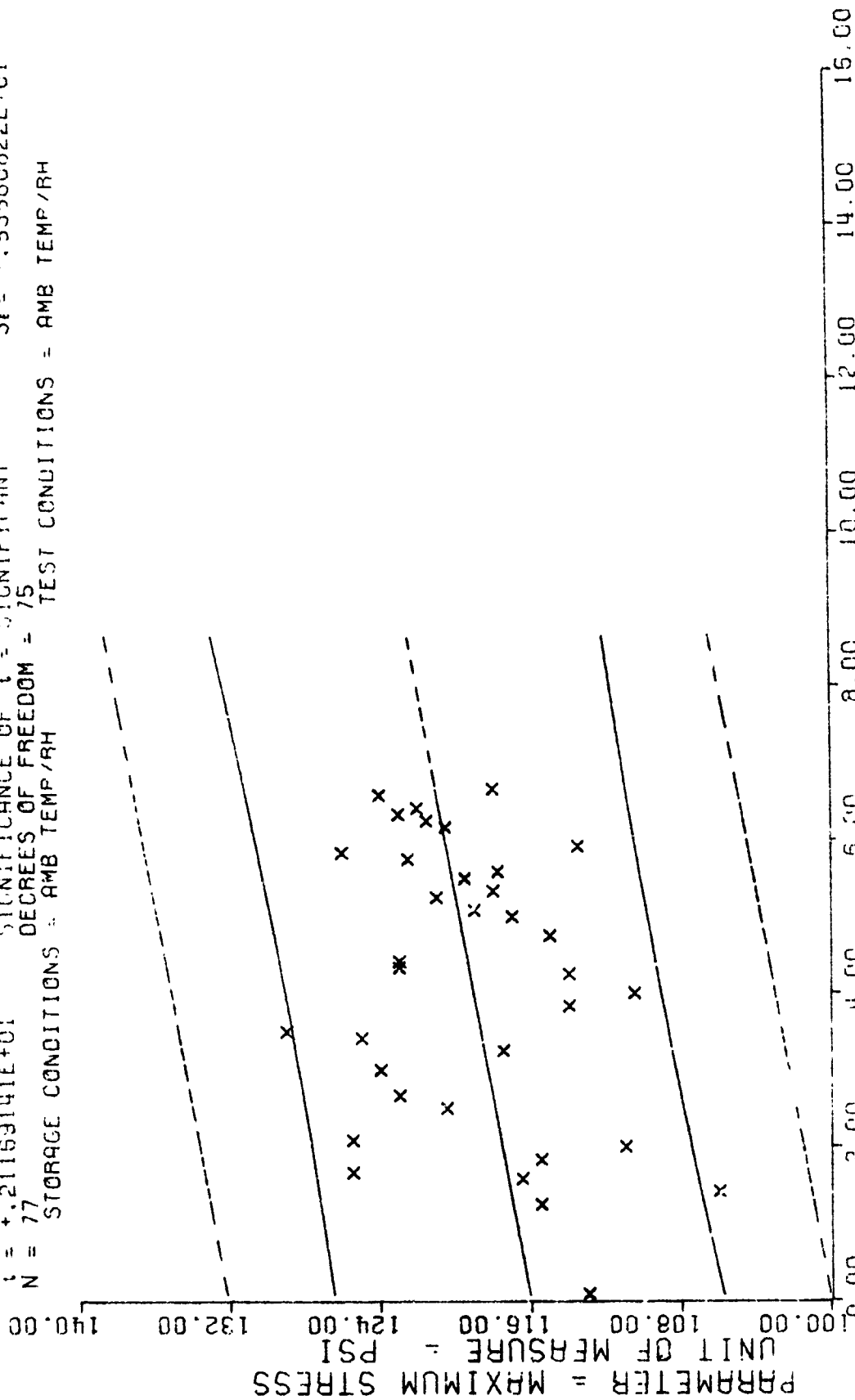
LOW RATE BIAXIAL TENSILE
Figure 6

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
1.0	1	32.0	2	53.0	2	70.0	2
15.0	2	36.0	2	57.0	2	71.0	2
17.0	2	39.0	4	60.0	2	74.0	2
19.0	2	41.0	2	61.0	2	75.0	4
20.0	2	42.0	2	63.0	2	76.0	2
22.0	2	46.0	2	64.0	2	77.0	2
24.0	2	48.0	2	66.0	2	79.0	2
25.0	2	51.0	2	67.0	4	80.0	2
30.0	2	52.0	2	69.0	4		77

Stage 1 Wing 6, TP-H 1011 Tensile, CSH 0000.2, EGL 1.75, CSA 1.8750 SM
Low Rate Biaxial Tensile

$Y = (+.11612641E+03) + (+.61340333E-01) * X$
 F = +.44813255E+01 SIGNIFICANCE OF F = SIGNIFICANT
 R = +.23744919E+00 SIGNIFICANCE OF R = SIGNIFICANT
 t = +.21163141E+01 SIGNIFICANCE OF t = SIGNIFICANT
 N = 77 DEGREES OF FREEDOM = 75
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH



STAGE 1 WING G, T-P-H 1011 TENSILE, CHS 0000.2, EGL 1.7', CSA 1.9750 3M

LOW RATE BIAXIAL TENSILE

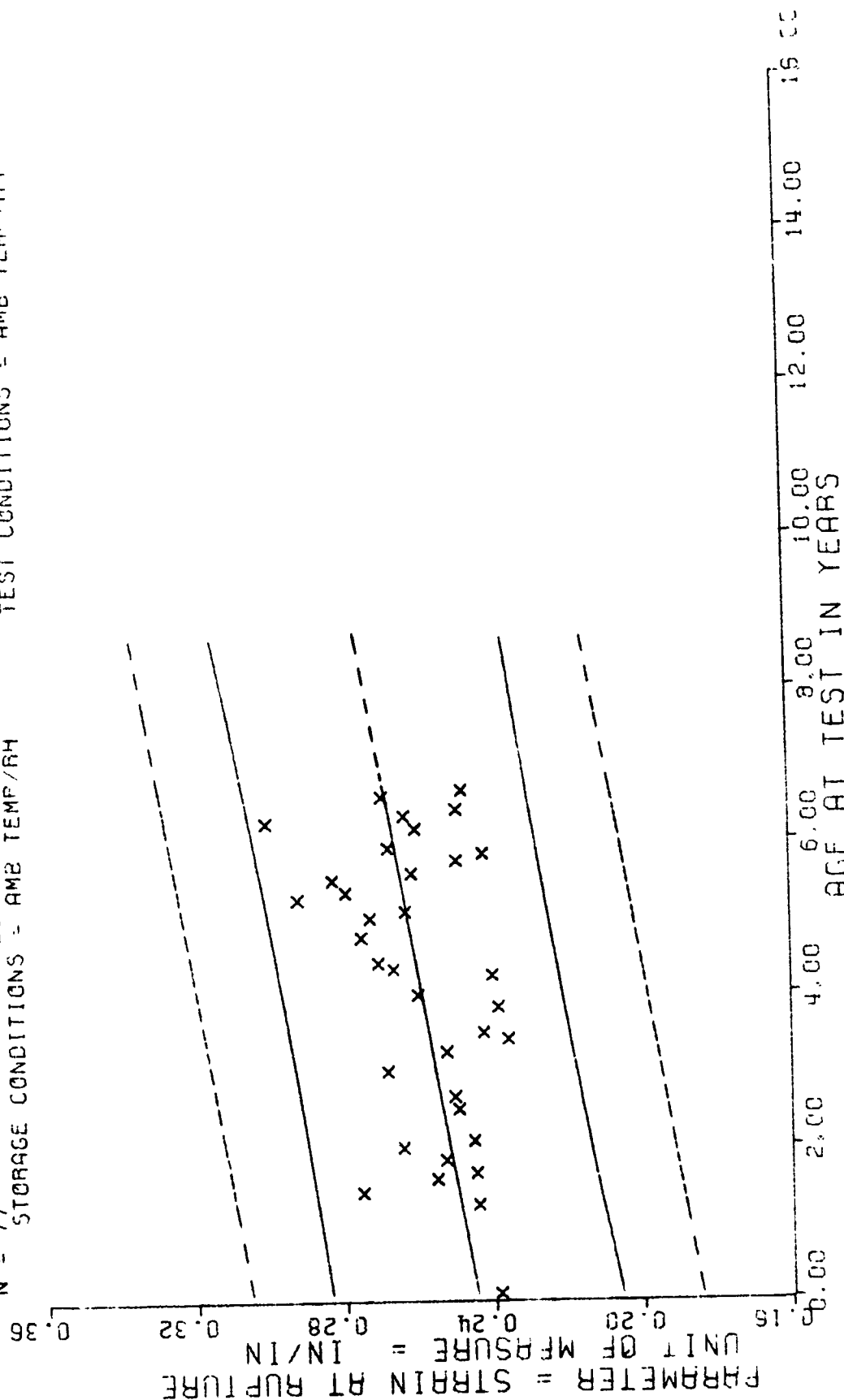
Figure 7

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
1.0	1	32.0	2	53.0	2	70.0	2
15.0	2	36.0	2	57.0	2	71.0	2
17.0	2	39.0	4	60.0	2	74.0	2
19.0	2	41.0	2	61.0	2	75.0	4
20.0	2	42.0	2	63.0	2	76.0	2
22.0	2	46.0	2	64.0	2	77.0	2
24.0	2	48.0	2	66.0	2	79.0	2
25.0	2	51.0	2	67.0	4	80.0	2
30.0	2	52.0	2	69.0	4		77

Stage 1 Wing 6, TP-H 1011 Tensile, CHS 0000.2, EGL 1.75, CSA 1.8750 ER
Low Rate Biaxial Tensile

F = +.69921552E+01
 R = +.29202456E+00
 t = +.2642693E+01
 N = 77
 I = (+.24518069E+00) + (+.29142459E-03) * X
 SIGNIFICANCE OF F = SIGNIFICANT
 SIGNIFICANCE OF R = SIGNIFICANT
 SIGNIFICANCE OF t = SIGNIFICANT
 DEGREES OF FREEDOM = 75
 STORAGE CONDITIONS = AMB TEMP/RH
 TEST CONDITIONS = AMB TEMP/RH



STAGE 1 WING G. TP-H 1011 TENSILE, CHS 0000.2, EGL 1.75, CSA 1.3750 ER
 LOW RATE BIAXIAL TENSILE

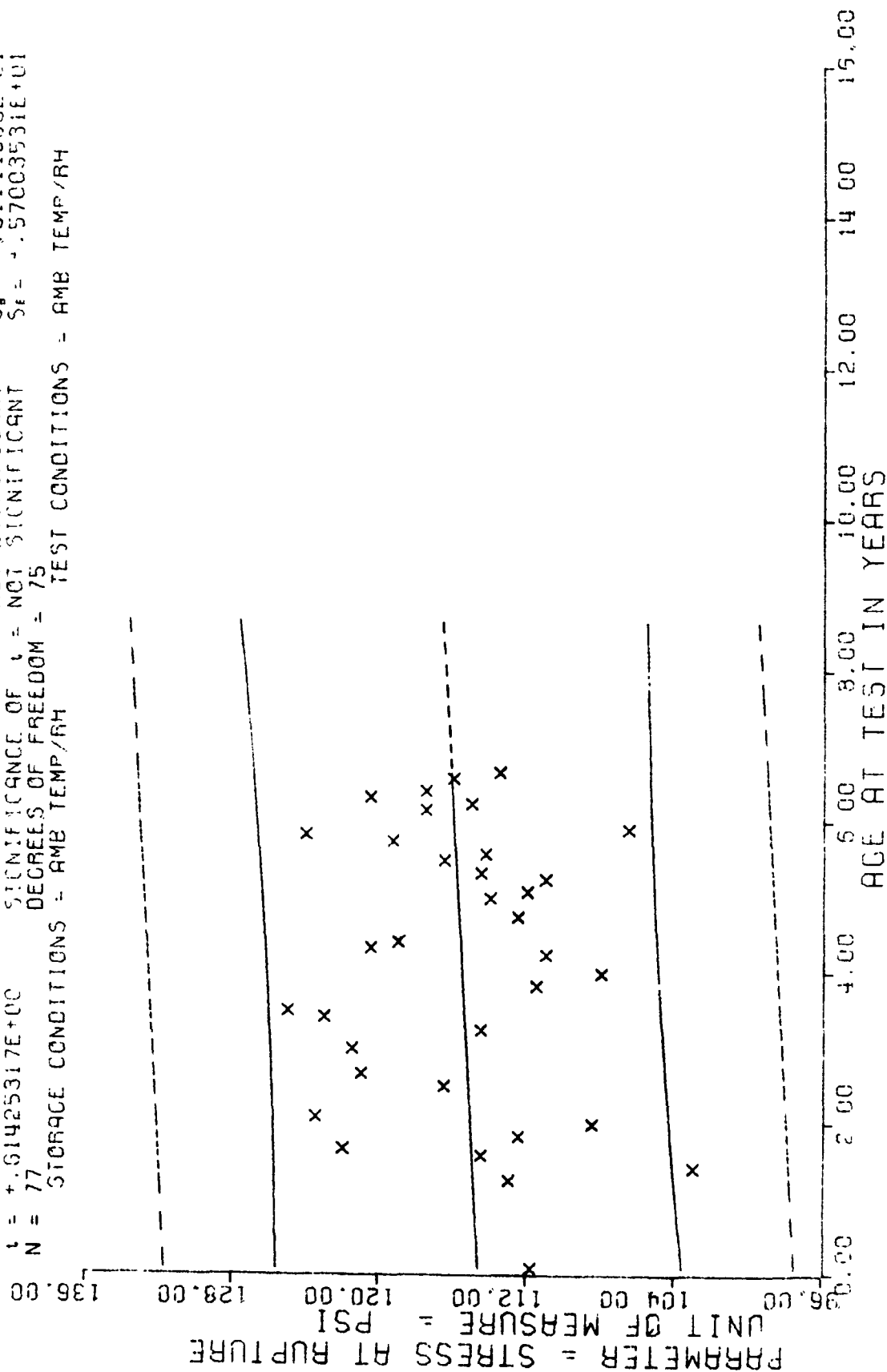
Figure 8

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
1.0	1	32.0	2	53.0	2	70.0	2
15.0	2	36.0	2	57.0	2	71.0	2
17.0	2	39.0	4	60.0	2	74.0	2
19.0	2	41.0	2	61.0	2	75.0	4
20.0	2	42.0	2	63.0	2	76.0	2
22.0	2	46.0	2	64.0	2	77.0	2
24.0	2	48.0	2	66.0	2	79.0	2
25.0	2	51.0	2	67.0	4	80.0	2
30.0	2	52.0	2	69.0	4		77

Stage 1 Wing 6, TP-H 1011 Tensile, CHS 0000.2, EGL 1.75, CSA 1.8750 SR
Low Rate Biaxial Tensile

$Y = (+.1146541E+03) + (+.10130397E-01) * X$
 F = +.37730695E+00 SIGNIFICANCE OF F = NOT SIGNIFICANT $S_T = +.567693527E+01$
 R = +.70750106E-01 SIGNIFICANCE OF R = NOT SIGNIFICANT $S_B = +.31144968E-01$
 t = +.61425317E+00 SIGNIFICANCE OF t = NOT SIGNIFICANT $S_E = +.57003531E+01$
 N = 77 DEGREES OF FREEDOM = 75
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH



STAGE 1 WING 94 P-H 1011 TENSILE. CHS 0000.2, EGL 1.75, CSA 1.8750 SP

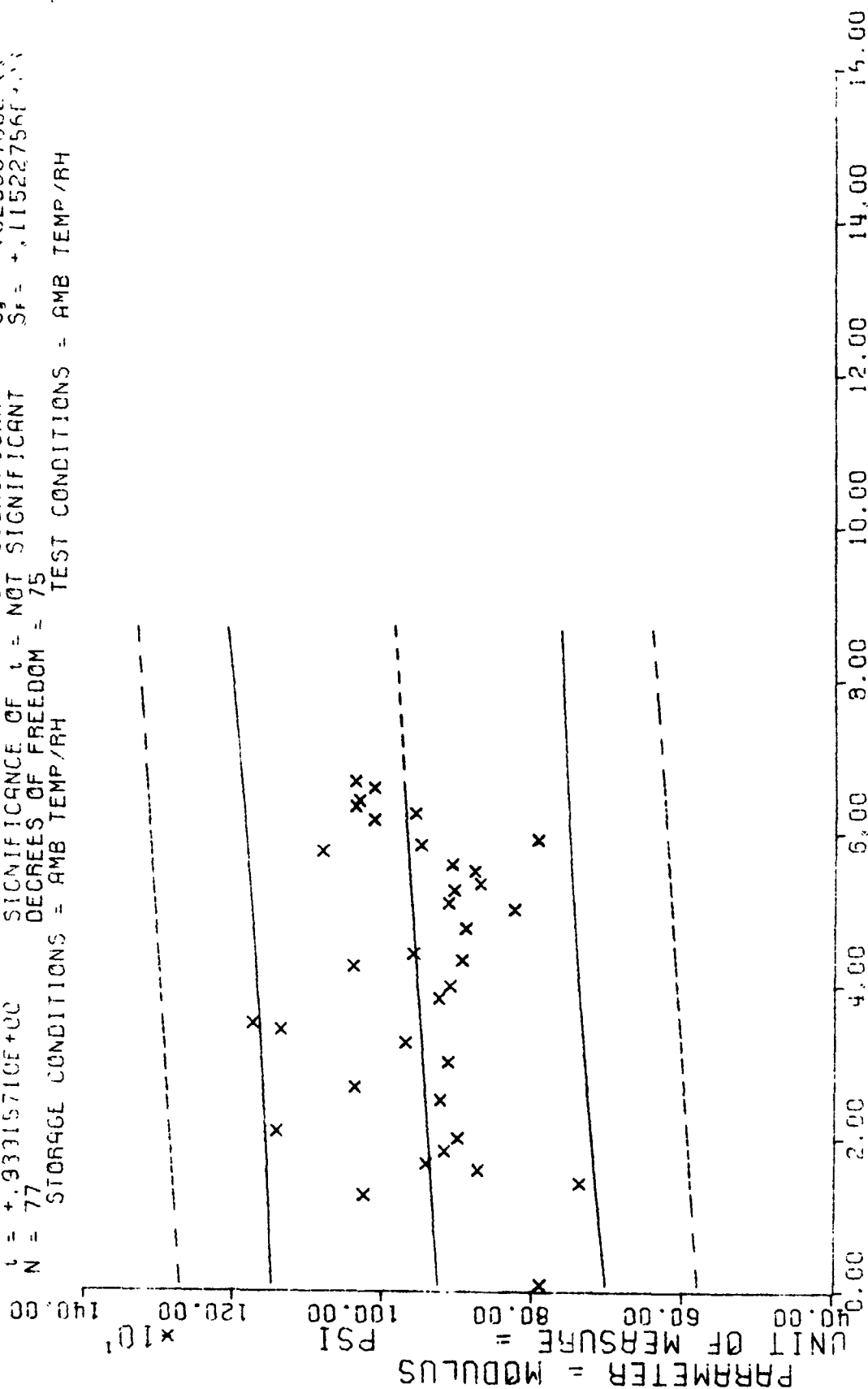
LOW RATE BIAXIAL TENSILE

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
1.0	1	32.0	2	53.0	2	70.0	2
15.0	2	36.0	2	57.0	2	71.0	2
17.0	2	39.0	4	60.0	2	74.0	2
19.0	2	41.0	2	61.0	2	75.0	4
20.0	2	42.0	2	63.0	2	76.0	2
22.0	2	46.0	2	64.0	2	77.0	2
24.0	2	48.0	2	66.0	2	79.0	2
25.0	2	51.0	2	67.0	4	80.0	2
30.0	2	52.0	2	69.0	4		77

Stage 1 Wing 6, TP-H 1011 Tensile, CHS 0000.2, EGL 1.75, CSA 1.8750 MD
Low Rate Biaxial Tensile

$Y = (+.32650133E+03) + (+.59126315E+00) \times X$
 SIGNIFICANCE OF F = NOT SIGNIFICANT
 SIGNIFICANCE OF R = NOT SIGNIFICANT
 SIGNIFICANCE OF t = NOT SIGNIFICANT
 DEGREES OF FREEDOM = 75
 N = 77
 STORAGE CONDITIONS = AMB TEMP/RH
 TEST CONDITIONS = AMB TEMP/RH
 $G_1 = +.11513808E+03$
 $S_1 = +.62956736E+00$
 $S_F = +.11522756E+00$



STAGE I WING 3, TP-H 1011 TENSILE, CHS 0000.2, EGL 1.75, CSA 1.8750 M'

LOW RATE BIAXIAL TENSILE

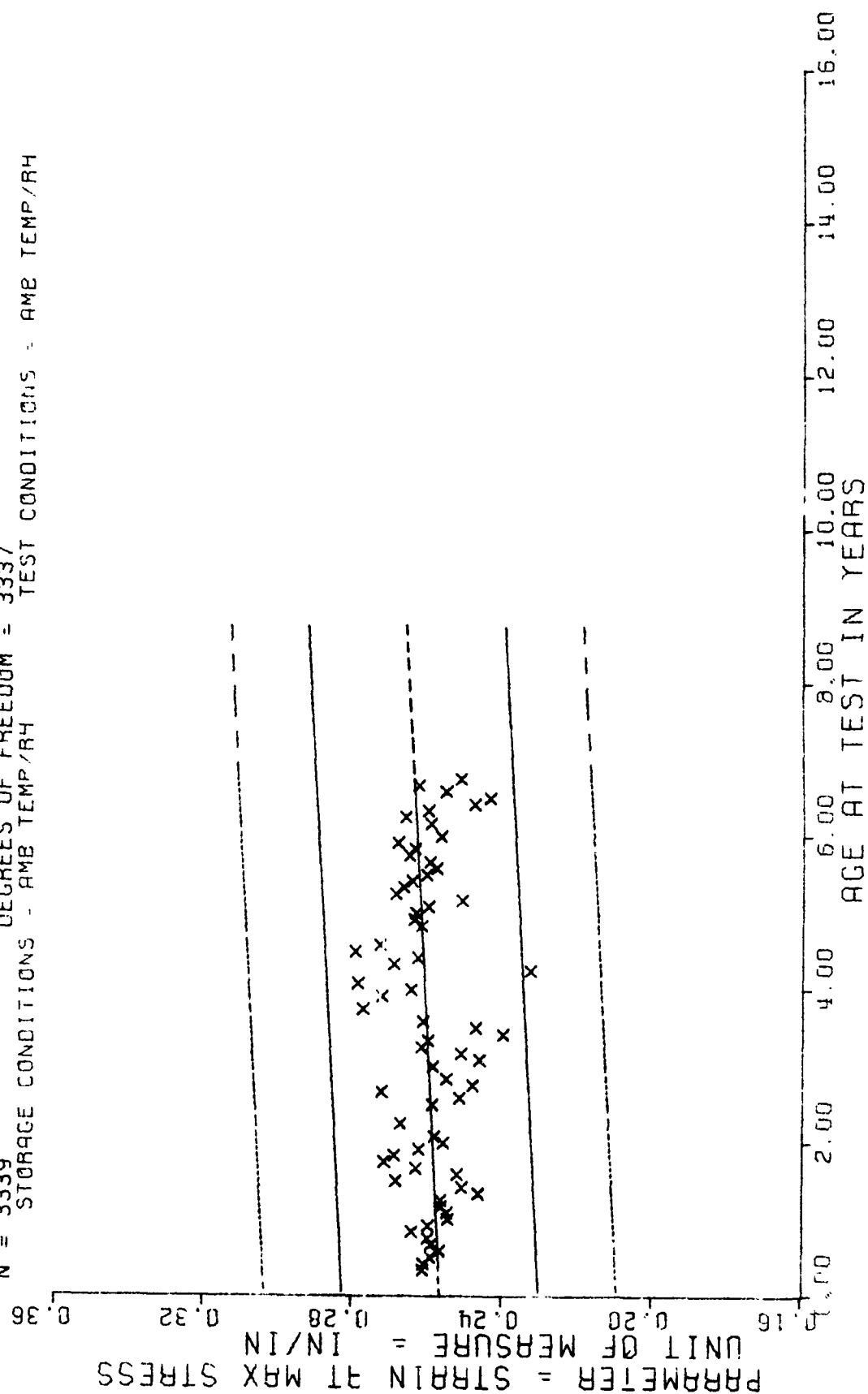
Figure 10

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
4.0	57	22.0	5	45.0	15	67.0	25
5.0	151	23.0	10	47.0	60	68.0	20
6.0	191	24.0	15	48.0	15	69.0	55
7.0	171	25.0	18	49.0	30	70.0	45
8.0	140	27.0	15	51.0	2	71.0	18
9.0	185	30.0	10	52.0	45	72.0	20
10.0	183	31.0	5	53.0	10	74.0	25
11.0	192	32.0	15	54.0	5	75.0	30
12.0	184	33.0	15	55.0	14	76.0	15
13.0	180	34.0	15	58.0	15	77.0	15
14.0	201	36.0	30	59.0	10	78.0	5
15.0	185	37.0	15	60.0	40	79.0	10
15.0	167	38.0	14	61.0	25	80.0	14
17.0	112	39.0	20	62.0	15	81.0	5
18.0	18	40.0	10	63.0	59		
19.0	25	41.0	5	64.0	24		
20.0	4	42.0	10	65.0	5		
21.0	15	43.0	30	66.0	30		
							3,339

Stage 1 Wing 6, TP-H 1011 Tensile, CHS 2.0000. EGL 3.00. CSA 0.1875 EM
Low Rate Tensile

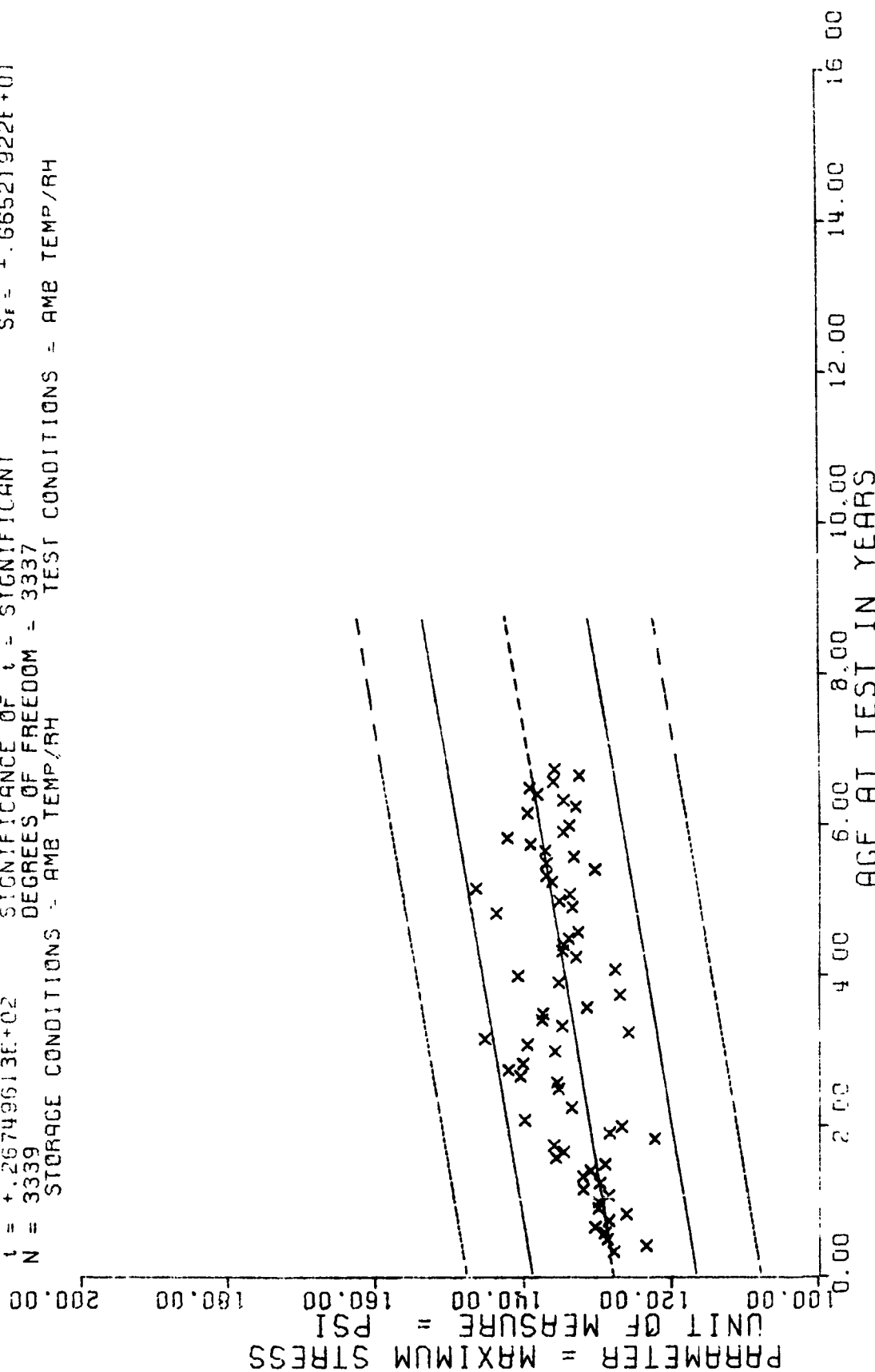
$F = +.52472531E+02$
 $R = +.12442279E+00$
 $t = +.72437925E+01$
 $N = 3339$
 $t - (+.25660321E+00) + (+.88978666E-04) \times X$
 SIGNIFICANCE OF F = SIGNIFICANT
 SIGNIFICANCE OF R = SIGNIFICANT
 SIGNIFICANCE OF t = SIGNIFICANT
 DEGREES OF FREEDOM = 3337
 STORAGE CONDITIONS - AMB TEMP/RH TEST CONDITIONS - AMB TEMP/RH



[illegible]

Stage 1, Wing 6, TP-H 1011 Tensile, CHS 2.0000, EGL 3.00, CSA 0.1875 SM
Low Rate Tensile

$F = +.71554130E+03$
 $R = +.42019778E+00$
 $t = +.26749613E+02$
 $N = 3339$
 STORAGE CONDITIONS = AMB TEMP/RH
 DEGREES OF FREEDOM = 3337
 TEST CONDITIONS = AMB TEMP/RH
 $(+.12791469E+03) + (.1392373E+00) * X$
 SIGNIFICANCE OF F = SIGNIFICANT
 SIGNIFICANCE OF R = SIGNIFICANT
 SIGNIFICANCE OF t = SIGNIFICANT
 $S_f = +.73296860E+01$
 $S_e = +.52052080E-02$
 $S_f = +.66521922E+01$



STAGE 1 WING 5, TP-H 1011 TENSILE, CHS 2.0000, EGL 3 00, CSA 0.1875 CM

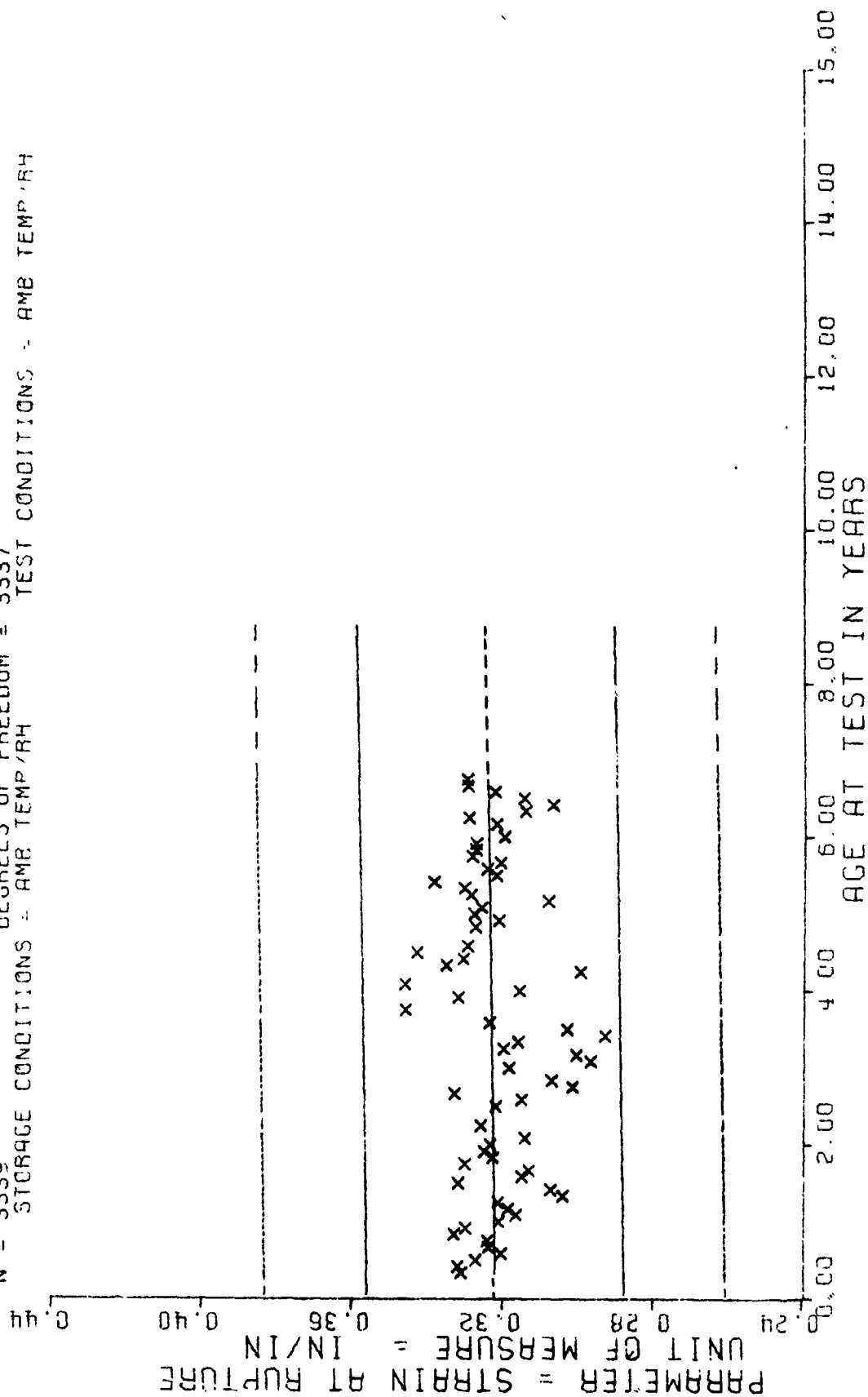
LOW RATE TENSILE
 Figure 12

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
4.0	57	22.0	5	45.0	15	67.0	25
5.0	151	23.0	10	47.0	60	68.0	20
6.0	191	24.0	15	48.0	15	69.0	55
7.0	171	25.0	18	49.0	30	70.0	45
8.0	140	27.0	15	51.0	2	71.0	18
9.0	185	30.0	10	52.0	45	72.0	20
10.0	183	31.0	5	53.0	10	74.0	25
11.0	192	32.0	15	54.0	5	75.0	30
12.0	184	33.0	15	55.0	14	76.0	15
13.0	180	34.0	15	58.0	15	77.0	15
14.0	201	36.0	30	59.0	10	78.0	5
15.0	185	37.0	15	60.0	40	79.0	10
16.0	167	38.0	14	61.0	25	80.0	14
17.0	112	39.0	20	62.0	15	81.0	5
18.0	18	40.0	10	63.0	59		
19.0	25	41.0	5	64.0	24		
20.0	4	42.0	10	65.0	5		
21.0	15	43.0	30	66.0	30		
							3,339

Stage 1, Wing 6, TP-H 1011 Tensile, CHS 2.0000, EGL 3.00, CSA 0.1875 ER
Low Rate Tensile

$f = (+.32223811E+00) + (+.27981821E-04) * X$
 F = +.30715815E+01 SIGNIFICANCE OF F = NOT SIGNIFICANT $\sigma_1 = +.20410625E-01$
 R = +.30325162E-01 SIGNIFICANCE OF R = NOT SIGNIFICANT $\sigma_0 = +.15965955E-04$
 t = +.17525927E+01 SIGNIFICANCE OF t = NOT SIGNIFICANT $\sigma_e = +.20404294E-01$
 N = 3339 DEGREES OF FREEDOM = 3337
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH



STACCL 1 WING 6, TP H 1011 TENSILE, CHS 2.0000, EGL 3.00, CSA 0 1875 ER

LOW RATE TENSILE

Figure 13

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
4.0	57	22.0	5	45.0	15	67.0	25
5.0	151	23.0	10	47.0	60	68.0	20
6.0	191	24.0	15	48.0	15	69.0	55
7.0	171	25.0	18	49.0	30	70.0	45
8.0	140	27.0	15	51.0	2	71.0	18
9.0	185	30.0	10	52.0	45	72.0	20
10.0	183	31.0	5	53.0	10	74.0	25
11.0	192	32.0	15	54.0	5	75.0	30
12.0	184	33.0	15	55.0	14	76.0	15
13.0	180	34.0	15	58.0	15	77.0	15
14.0	201	36.0	30	59.0	10	78.0	5
15.0	185	37.0	15	60.0	40	79.0	10
16.0	167	38.0	14	61.0	25	80.0	14
17.0	112	39.0	20	62.0	15	81.0	5
18.0	18	40.0	10	63.0	59		
19.0	25	41.0	5	64.0	24		
20.0	4	42.0	10	65.0	5		
21.0	15	43.0	30	66.0	30		
							3,339

Stage 1 Wing 6, TP-H 1011 Tensile, CHS 2.0000, EGL 3.00, CSA 0.1875 SR
Low Rate Tensile

$Y = (+.11956271E+03) + (+.11801380E+00) \times X$
 $F = +.45794699E+03$ SIGNIFICANCE OF F = SIGNIFICANT
 $R = +.34737995E+00$ SIGNIFICANCE OF R = SIGNIFICANT
 $t = +.21599636E+02$ SIGNIFICANCE OF t = SIGNIFICANT
 $N = 3339$ DEGREES OF FREEDOM = 3337
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH

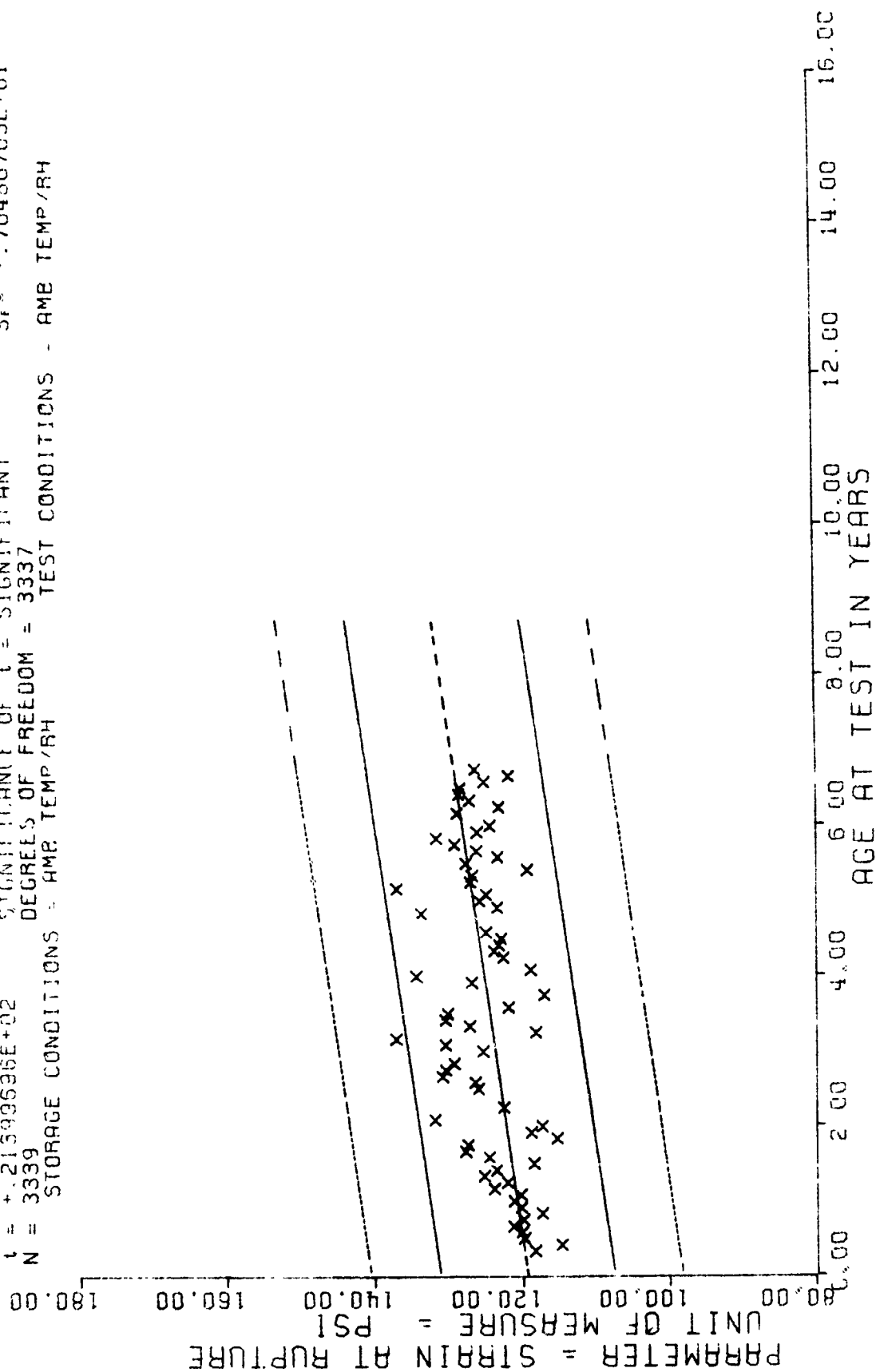


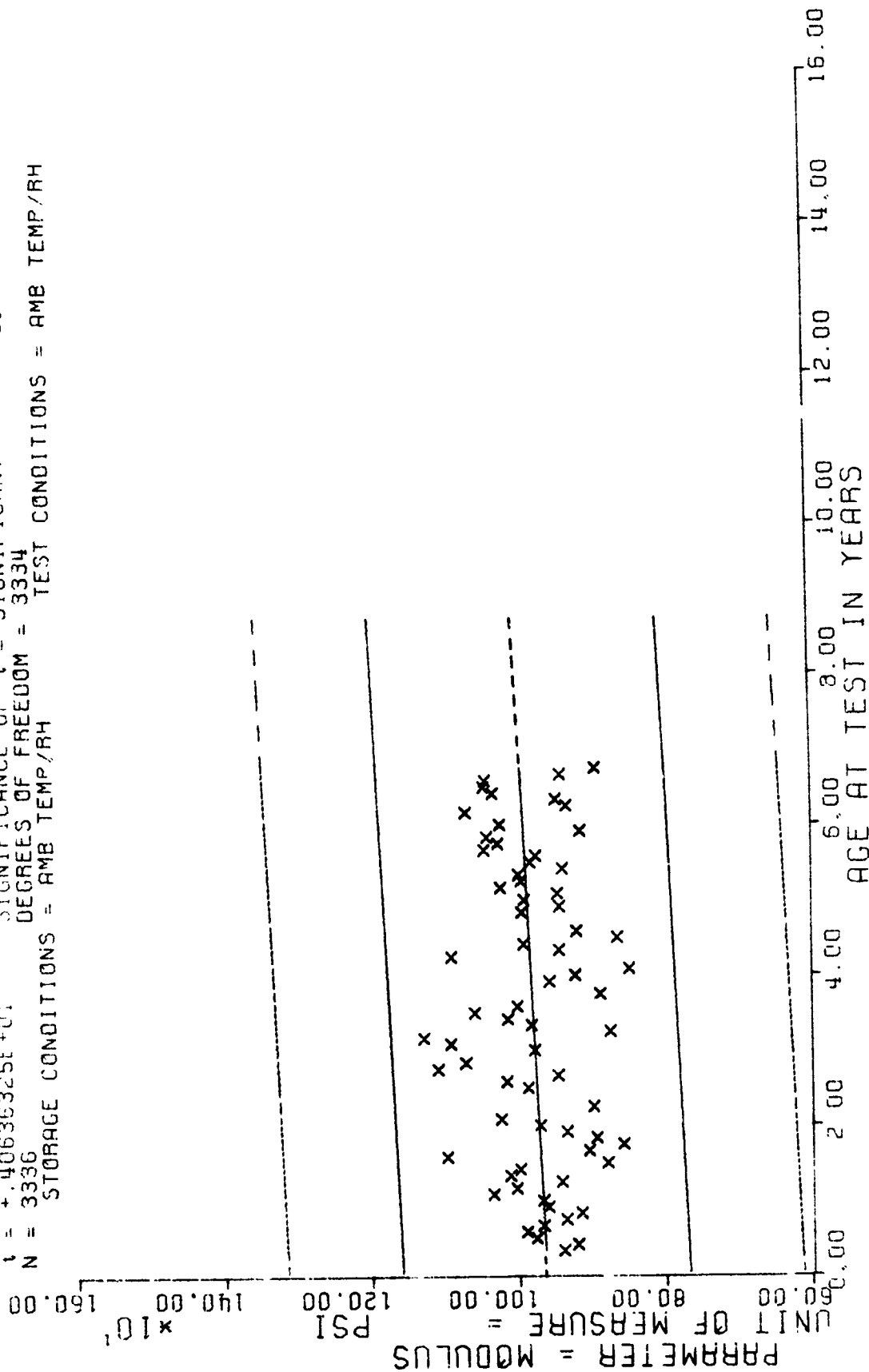
Figure 14

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
4.0	57	22.0	5	45.0	15	67.0	24
5.0	151	23.0	10	47.0	60	68.0	20
6.0	191	24.0	15	48.0	15	69.0	55
7.0	171	25.0	18	49.0	30	70.0	45
8.0	140	27.0	15	51.0	2	71.0	15
9.0	185	30.0	10	52.0	45	72.0	20
10.0	183	31.0	5	53.0	10	74.0	25
11.0	192	32.0	15	54.0	5	75.0	30
12.0	184	33.0	15	55.0	14	76.0	15
13.0	180	34.0	15	58.0	15	77.0	15
14.0	201	36.0	30	59.0	10	78.0	5
15.0	185	37.0	15	60.0	40	79.0	10
16.0	167	38.0	15	61.0	25	80.0	14
17.0	112	39.0	20	62.0	15	81.0	5
18.0	18	40.0	10	63.0	59		
19.0	25	41.0	5	64.0	24		
20.0	4	42.0	10	65.0	5		
21.0	15	43.0	30	66.0	30		
							3,336

Stage 1 Wing 6, TP-H 1011 Tensile, CHS 2.0000, EGL 3.00, CSA 0.1875 MD
Low Rate Tensile

$F = +.16513109E+02$
 $R = +.70203500E-01$
 $t = +.40636325E+01$
 $N = 3336$
 STORAGE CONDITIONS = AMB TEMP/RH
 DEGREES OF FREEDOM = 3334
 TEST CONDITIONS = AMB TEMP/RH
 $(+.36521449E+03) + (.37342593E+00) \times X$
 SIGNIFICANCE OF F = SIGNIFICANT
 SIGNIFICANCE OF R = SIGNIFICANT
 SIGNIFICANCE OF t = SIGNIFICANT
 $ST = +.11741373E+03$
 $SE = +.91894601E-01$
 $SE = +.11714160E+03$

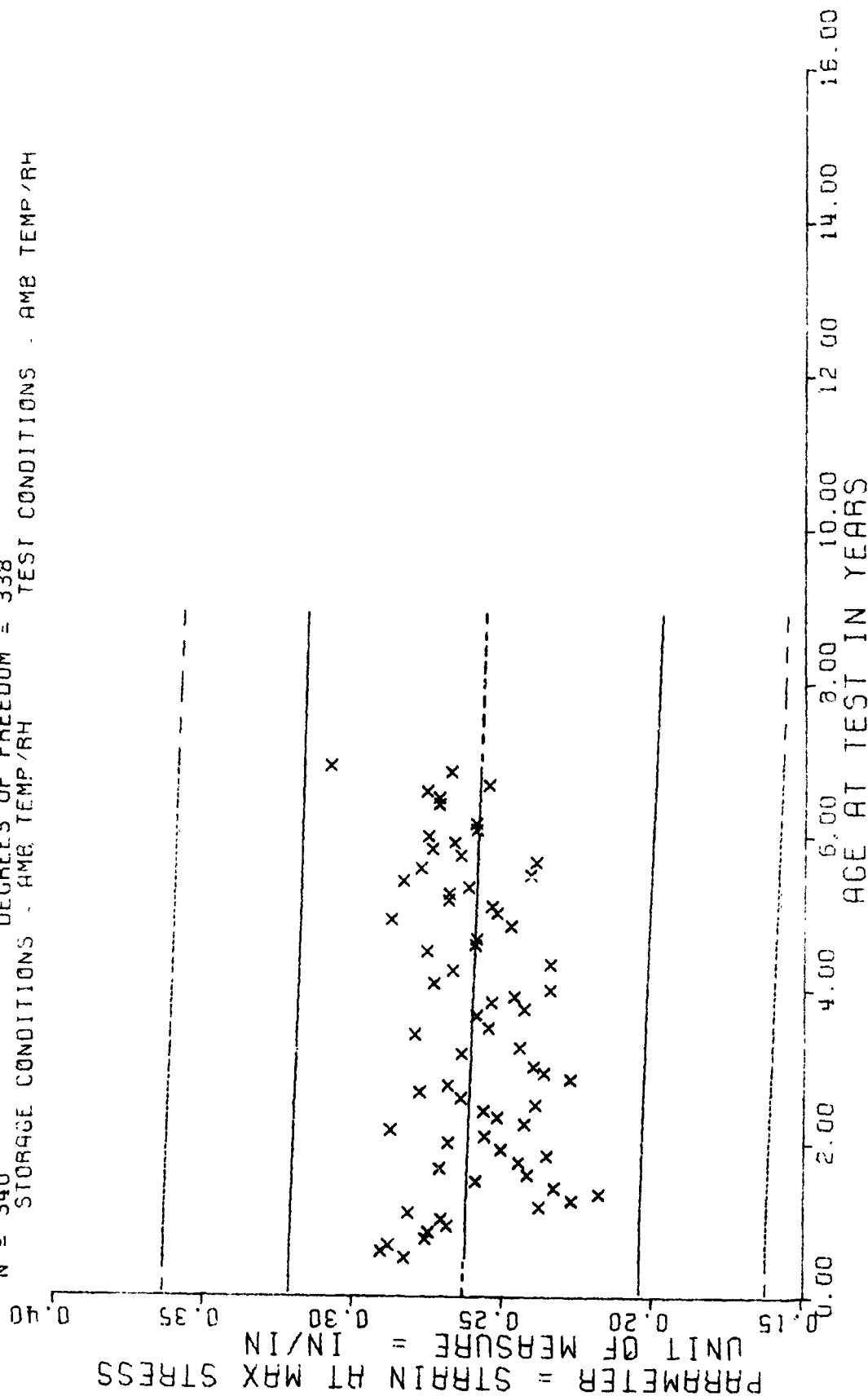


SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
6.0	8	24.0	4	45.0	2	66.0	2
7.0	17	25.0	7	46.0	2	67.0	2
8.0	13	26.0	6	47.0	6	68.0	4
9.0	10	27.0	6	48.0	2	69.0	5
10.0	9	28.0	7	49.0	4	70.0	4
11.0	8	29.0	5	51.0	2	71.0	4
12.0	10	30.0	4	52.0	2	72.0	4
13.0	6	31.0	8	54.0	2	73.0	2
14.0	2	32.0	6	55.0	4	74.0	4
15.0	10	33.0	9	56.0	2	77.0	4
16.0	5	34.0	8	58.0	2	78.0	2
17.0	6	35.0	11	59.0	2	79.0	2
18.0	5	36.0	5	60.0	4	80.0	2
19.0	8	38.0	4	61.0	2	82.0	2
20.0	7	39.0	2	62.0	4	83.0	2
21.0	4	41.0	2	63.0	4		
22.0	6	42.0	4	64.0	4		
23.0	9	44.0	2	65.0	2		
							340

Stage 1 Wing 6, TP-H 1011 Tensile, CHS 1750.0 EGL 1.75 CSA 1.8750 TP 0950 EM
High Rate Triaxial Tensile

$F = +.68964025E+00$ SIGNIFICANCE OF F = NOT SIGNIFICANT $G = +.33529799E-01$
 $R = -.45124286E-01$ SIGNIFICANCE OF R = NOT SIGNIFICANT $S = +.82813535E-04$
 $t = +.933044531E+00$ SIGNIFICANCE OF t = NOT SIGNIFICANT $S_1 = +.33545158E-01$
 $N = 340$ DEGREES OF FREEDOM = 338
 STORAGE CONDITIONS - AMB TEMP/RH TEST CONDITIONS - AMB TEMP/RH



STAGE 1 WING 6, TP-H 1011 TENSILE, CHS 1750.0 EGL 1.75 CJA 1 0750 TP 0950 EM

HIGH RATE TRIAXIAL TENSILE

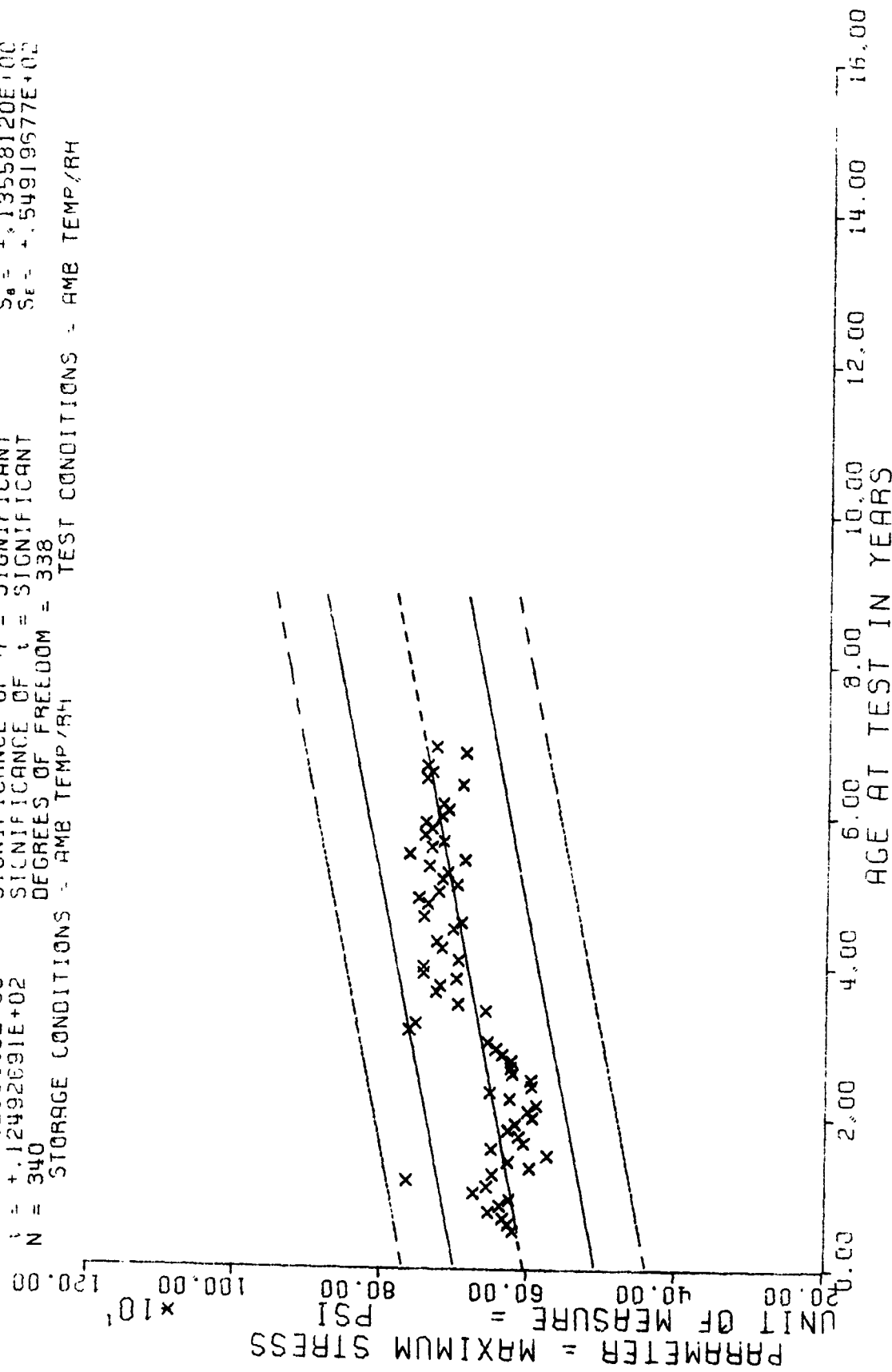
Figure 16

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
6.0	8	24.0	4	45.0	2	66.0	2
7.0	17	25.0	7	46.0	2	67.0	2
8.0	13	26.0	6	47.0	6	68.0	4
9.0	10	27.0	6	48.0	2	69.0	5
10.0	9	28.0	7	49.0	4	70.0	4
11.0	8	29.0	5	51.0	2	71.0	4
12.0	10	30.0	4	52.0	2	72.0	4
13.0	6	31.0	8	54.0	2	73.0	2
14.0	2	32.0	6	55.0	4	74.0	4
15.0	10	33.0	9	56.0	2	77.0	4
16.0	5	34.0	8	58.0	2	78.0	2
17.0	6	35.0	11	59.0	2	79.0	2
18.0	5	36.0	5	60.0	4	80.0	2
19.0	8	38.0	4	61.0	2	82.0	2
20.0	7	39.0	2	62.0	4	83.0	2
21.0	4	41.0	2	63.0	4		
22.0	6	42.0	4	64.0	4		
23.0	9	44.0	2	65.0	2		
		45					
							340

Stage 1 Wing 6, TP-H 1011 Tensile, CHS 1750.0 EGL 1.75 CSA 1.8750 TP 0950 SM
High Rate Triaxial Tensile

$F = +.15606734E+03$ SIGNIFICANCE OF F = SIGNIFICANT $\sigma_1 = +.66301171E+02$
 $R = +.56203446E+00$ SIGNIFICANCE OF R = SIGNIFICANT $S_0 = +.13558120E+00$
 $t = +.12492691E+02$ SIGNIFICANCE OF t = SIGNIFICANT $S_E = +.54919577E+02$
 $N = 340$ DEGREES OF FREEDOM = 338
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH



STAGE 1 WING 6, TP-H 1011 TENSILE, CHS 1750.0 EGL 1.75 CSA 1.8750 TP 0950 'M

HIGH RATE TRIAXIAL TENSILE

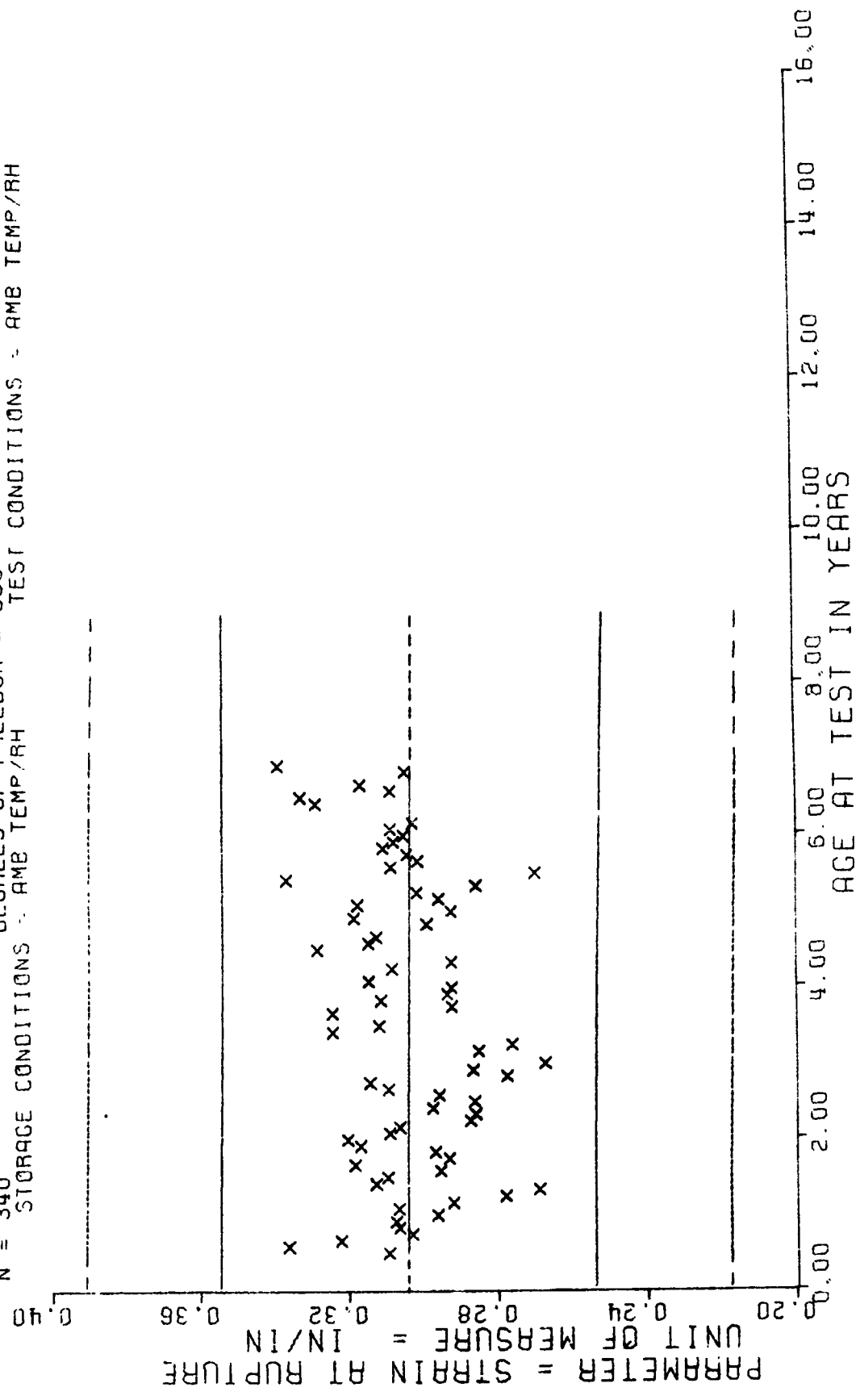
Figure 17

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
6.0	8	24.0	4	45.0	2	66.0	2
7.0	17	25.0	7	46.0	2	67.0	2
8.0	13	26.0	6	47.0	6	68.0	4
9.0	10	27.0	6	48.0	2	69.0	5
10.0	9	28.0	7	49.0	4	70.0	4
11.0	8	29.0	5	51.0	2	71.0	4
12.0	10	30.0	4	52.0	2	72.0	4
13.0	6	31.0	8	54.0	2	73.0	4
14.0	2	32.0	6	55.0	4	74.0	2
15.0	10	33.0	9	56.0	2	77.0	4
16.0	5	34.0	8	58.0	2	78.0	2
17.0	6	35.0	11	59.0	2	79.0	2
18.0	5	36.0	5	60.0	4	80.0	2
19.0	8	38.0	4	61.0	2	82.0	2
20.0	7	39.0	2	62.0	4	83.0	2
21.0	4	41.0	2	63.0	4		
22.0	6	42.0	4	64.0	4		
23.0	9	44.0	2	65.0	2		
							340

Stage 1 Wing 6, TP-H 1011 Tensile, CSH 1750.0 EGL 1.75 CSA 1.8750 TP 0950 ER
High Rate Triaxial Tensile

$t = (1.30464288E+00) + (-.28364358E-04) * X$
 SIGNIFICANCE OF F = NOT SIGNIFICANT
 SIGNIFICANCE OF R = NOT SIGNIFICANT
 SIGNIFICANCE OF t = NOT SIGNIFICANT
 DEGREES OF FREEDOM = 338
 N = 340
 STORAGE CONDITIONS - AMB TEMP/RH
 TEST CONDITIONS - AMB TEMP/RH



STAGE 1 WING G, TP-H 1011 TENSILE, CHS 1750.0 EGL 1.75 CSA 1 8750 TP 0950 ER
 HIGH RATE TRIAXIAL TENSILE

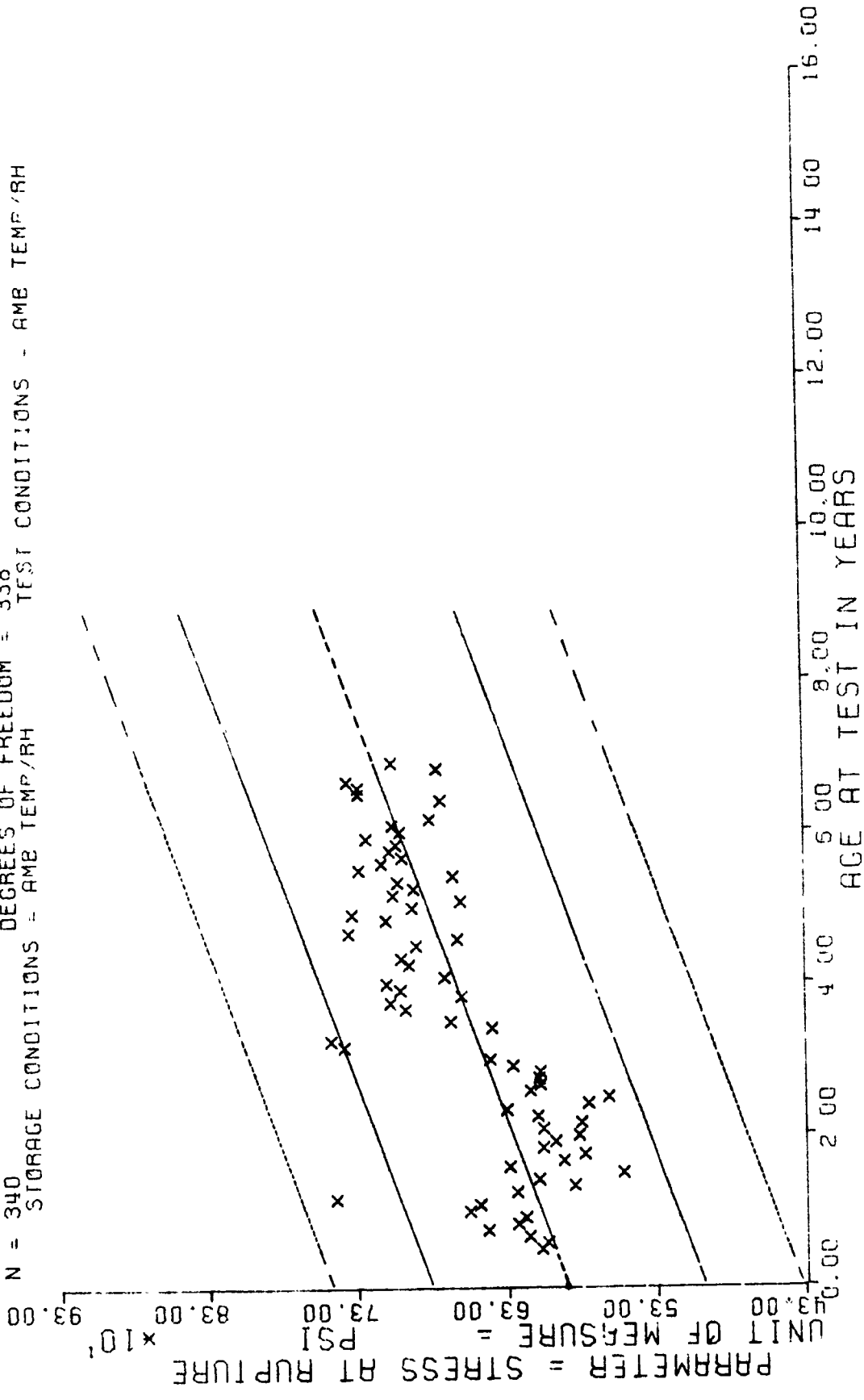
Figure 18

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
6.0	8	24.0	4	45.0	2	66.0	2
7.0	17	25.0	7	46.0	2	67.0	2
8.0	13	26.0	6	47.0	6	68.0	4
9.0	10	27.0	6	48.0	2	69.0	5
10.0	9	28.0	7	49.0	4	70.0	4
11.0	8	29.0	5	51.0	2	71.0	4
12.0	10	30.0	4	52.0	2	72.0	4
13.0	6	31.0	8	54.0	2	73.0	2
14.0	2	32.0	6	55.0	4	74.0	4
15.0	10	33.0	9	56.0	2	77.0	4
16.0	5	34.0	8	58.0	2	78.0	2
17.0	6	35.0	11	59.0	2	79.0	2
18.0	5	36.0	5	60.0	4	80.0	2
19.0	8	38.0	4	61.0	2	82.0	2
20.0	7	39.0	2	62.0	4	83.0	2
21.0	4	41.0	2	63.0	4		
22.0	6	42.0	4	64.0	4		
23.0	9	44.0	2	65.0	2		
							340

Stage 1 Wing 6, TP-H 1011 Tensile, CHS 1750.0 EGL 1.75 CSA 1.8750 TP 0950 SR
High Rate Triaxial Tensile

$F = +.13979501E+03$
 $R = +.54091003E+00$
 $t = +.11823494E+02$
 $N = 340$
 $Y = (+.59046417E+03) + (+.15305919E+01) * X$
 SIGNIFICANCE OF F = SIGNIFICANT
 SIGNIFICANCE OF R = SIGNIFICANT
 SIGNIFICANCE OF t = SIGNIFICANT
 DEGREES OF FREEDOM = 338
 STORAGE CONDITIONS = AMB TEMP/RH
 TEST CONDITIONS = AMB TEMP/RH



STAGE I WING G, TP-H 1011 TENSILE, CHS 1750.0 EGL 1 75 CSA 1 8750 TP 0950 SR

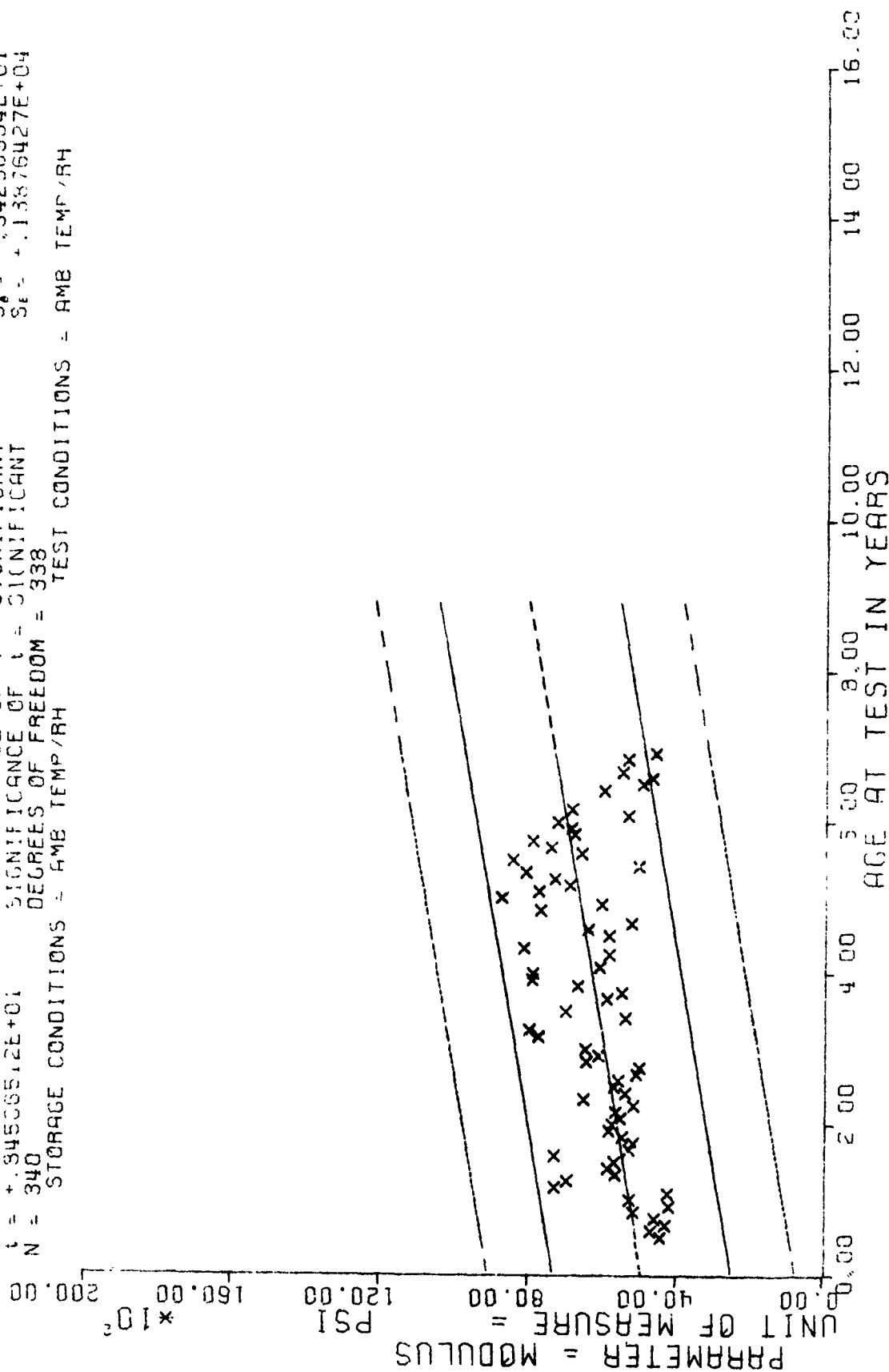
HIGH RATE TRIAXIAL TENSILE
 Figure 19

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Sample s	Age (months)	Nr Samples	Age (months)	Nr Samples
6.0	8	24.0	4	45.0	2	66.0	2
7.0	17	25.0	7	46.0	2	57.0	2
8.0	13	26.0	6	47.0	6	68.0	4
9.0	10	27.0	6	48.0	2	69.0	5
10.0	9	28.0	7	49.0	4	70.0	4
11.0	8	29.0	5	51.0	2	71.0	4
12.0	10	30.0	4	52.0	2	72.0	4
13.0	6	31.0	8	54.0	2	73.0	2
14.0	2	32.0	6	55.0	4	74.0	4
15.0	10	33.0	9	56.0	2	77.0	4
16.0	5	34.0	8	58.0	2	78.0	2
17.0	6	35.0	11	59.0	2	79.0	2
18.0	5	36.0	5	60.0	4	80.0	2
19.0	8	38.0	4	61.0	2	82.0	2
20.0	7	39.0	2	62.0	4	83.0	2
21.0	4	41.0	2	63.0	4		
22.0	6	42.0	4	64.0	4		
23.0	9	44.0	2	65.0	2		
							340

Stage 1 Wing 6, TP-H 1011 Tensile, CHS 1750.0 EGL 1.75 CSA 1.8750 TP 0950 ND
High Rate Triaxial Tensile

$F = +.71413506E+02$ SIGNIFICANCE OF F = SIGNIFICANT
 $R = +.41764674E+00$ SIGNIFICANCE OF R = SIGNIFICANT
 $t = +.34506512E+01$ SIGNIFICANCE OF t = SIGNIFICANT
 $N = 340$ DEGREES OF FREEDOM = 338
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH
 $Y = (+.49444360E+04) + (+.28949386E+02) * X$
 $S_e = +.15249616E+04$
 $S_o = +.34256934E+01$
 $S_e = +.13876427E+04$



STAGE 1 WING G, TP-H 1011 TENSILE, CHS 1750.0 EGL 1.75 CSA 1 3750 TP 0950 MD

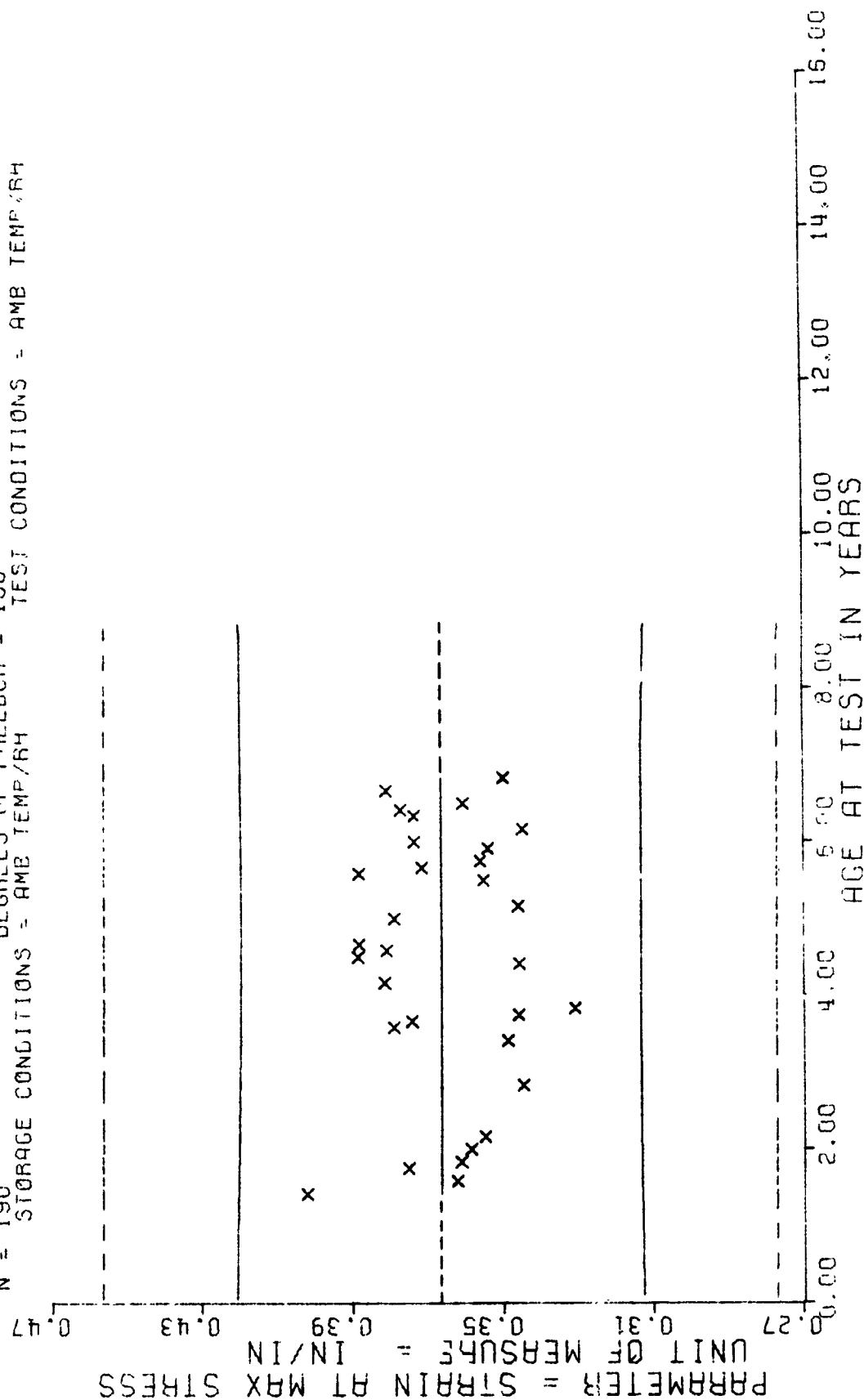
HIGH RATE TRIAXIAL TENSILE
Figure 20

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
17.0	5	44.0	5	62.0	5	77.0	10
19.0	5	45.0	4	66.0	5	78.0	10
21.0	5	46.0	1	67.0	5	80.0	5
22.0	5	50.0	5	68.0	5	82.0	5
24.0	5	53.0	5	69.0	10		
26.0	10	54.0	10	71.0	10		
34.0	5	55.0	5	72.0	5		
41.0	10	56.0	10	74.0	5		
43.0	5	60.0	5	76.0	5		
							190

Stage 1 Wing 6, TP-H 1011 Tensile, CHS 1750.0 EGL 1.75, CSA 0.1875 TP 0950 EM
Hydrostatic Tensile

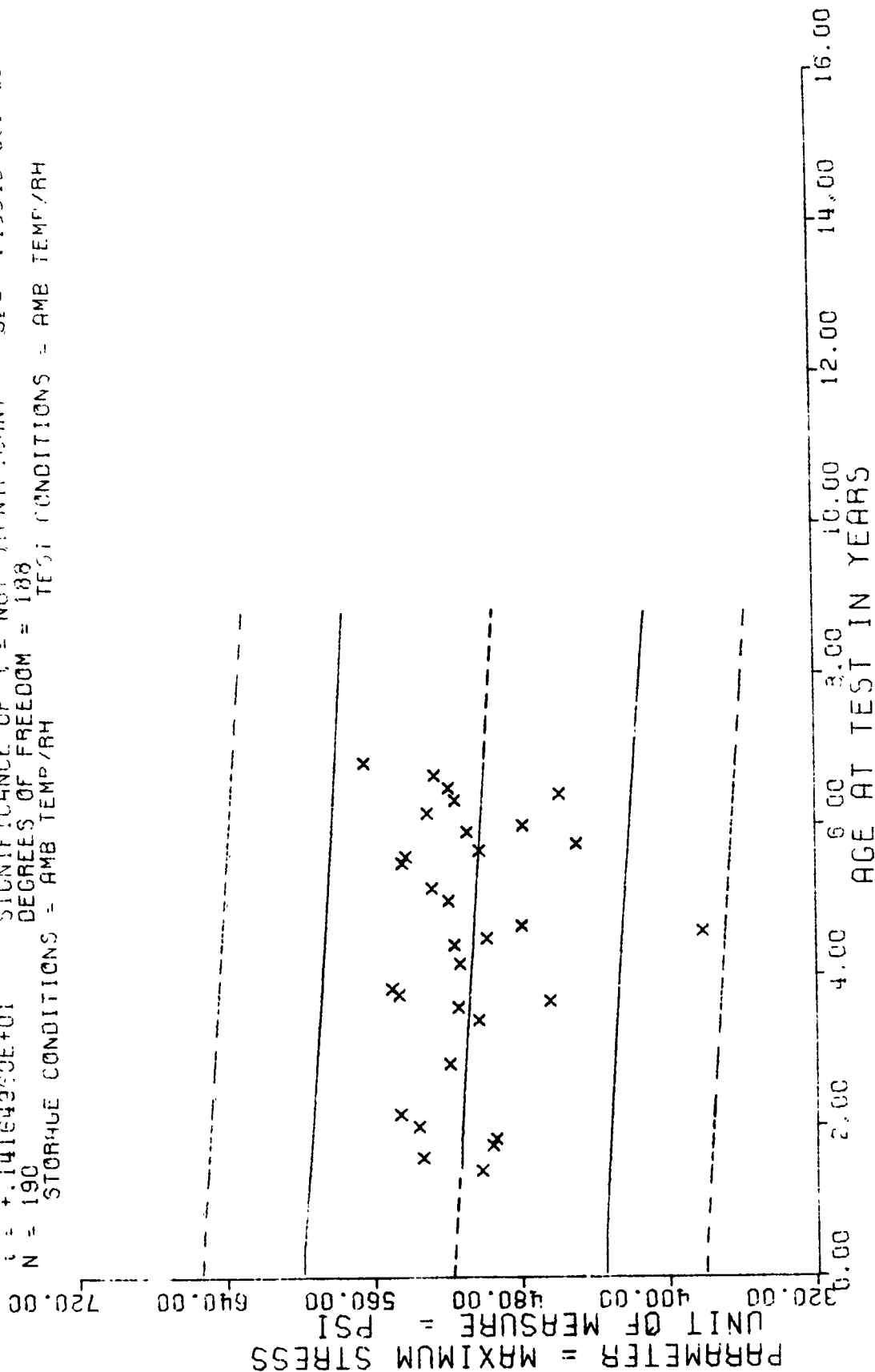
$F = +.56928942E-02$
 $R = -.59665093E-02$
 $t = +.81310110E-01$
 $N = 190$
 $Y = (+.36707173E+00) + (-.90106958E-05) * X$
 SIGNIFICANCE OF F = NOT SIGNIFICANT
 SIGNIFICANCE OF R = NOT SIGNIFICANT
 SIGNIFICANCE OF t = NOT SIGNIFICANT
 DEGREES OF FREEDOM = 188
 STORAGE CONDITIONS = AMB TEMP/RH
 TEST CONDITIONS = AMB TEMP/RH



Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
17.0	5	44.0	5	62.0	5	77.0	10
19.0	5	45.0	4	66.0	5	78.0	10
21.0	5	46.0	1	67.0	5	80.0	5
22.0	5	50.0	5	68.0	5	82.0	5
24.0	5	53.0	5	69.0	10		
26.0	10	54.0	10	71.0	10		190
34.0	5	55.0	5	72.0	5		
41.0	10	56.0	10	74.0	5		
43.0	5	60.0	5	76.0	5		

- 54 -

$Y = (+.51736867E+03) + (0.3771041E+00) * X$
 F = +.20064609E+01 SIGNIFICANCE OF F = NOT SIGNIFICANT $G = +.45670878E+02$
 R = -.10276167E+00 SIGNIFICANCE OF R = NOT SIGNIFICANT $S_a = +.16781530E+02$
 t = +.14164293E+01 SIGNIFICANCE OF t = NOT SIGNIFICANT $S_e = +.45549759E+02$
 N = 190 DEGREES OF FREEDOM = 188
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH

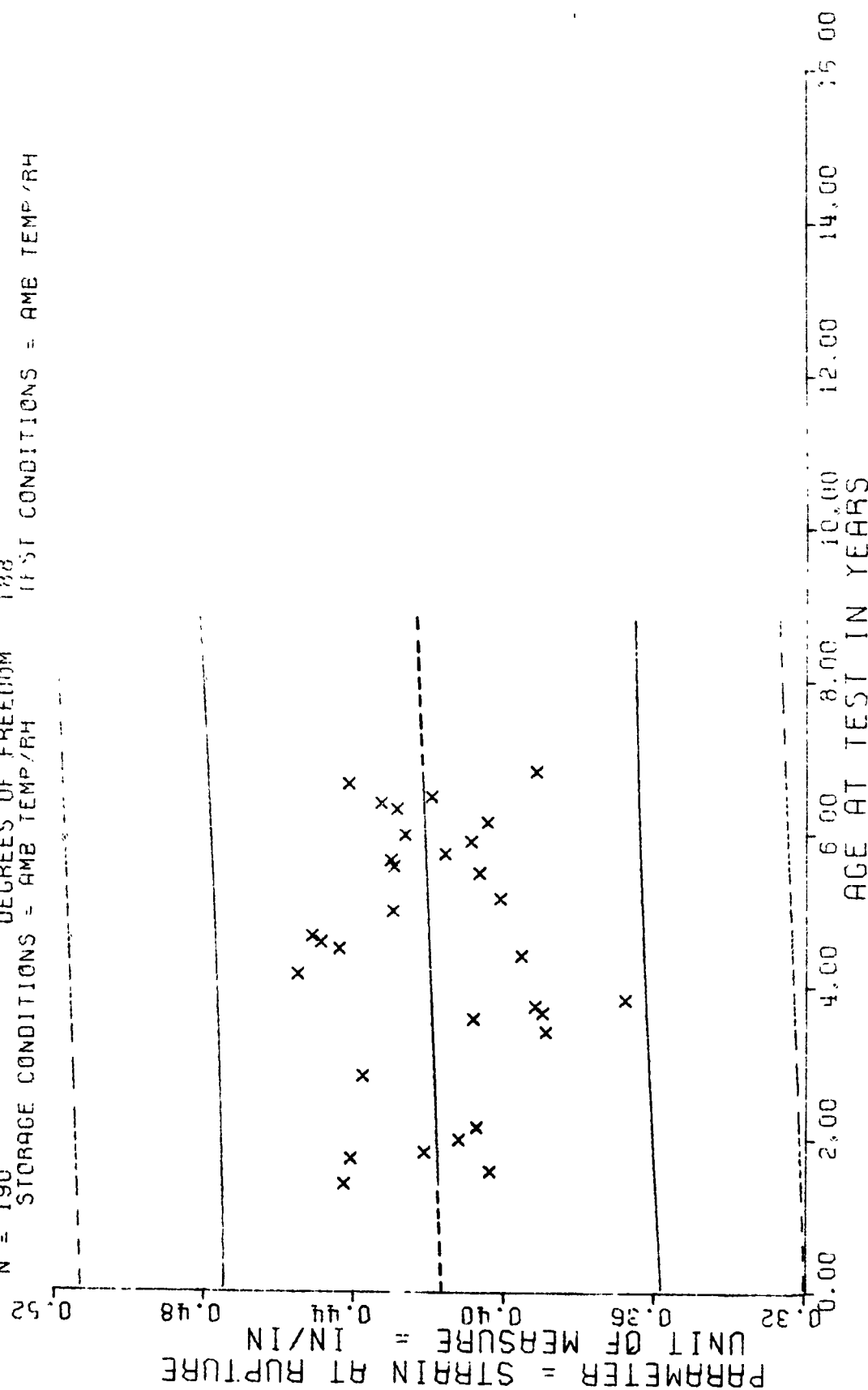


SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
17.0	5	44.0	5	77.0	10
19.0	5	45.0	4	78.0	10
21.0	5	46.0	1	80.0	5
22.0	5	50.0	5	82.0	5
24.0	5	53.0	5		
26.0	10	54.0	10		
34.0	5	55.0	5		
41.0	10	56.0	10		
43.0	5	60.0	5		
					190

Stage 1 Wing 6, TP-H 1011 Tensile, CHS 1750.0 EGL 1.75 CSA 0.1875 TP 0950 ER
Hydrostatic Tensile

$F = +.30421427E+00$ SIGNIFICANCE OF F = NOT SIGNIFICANT $G_1 = +.32145890E-01$
 $R = +.40193855E-01$ SIGNIFICANCE OF R = NOT SIGNIFICANT $S_0 = +.11865146E-03$
 $T = +.55155923E+00$ SIGNIFICANCE OF T = NOT SIGNIFICANT $S_1 = +.32205225E-01$
 $N = 190$ DEGREES OF FREEDOM 178
 STORAGE CONDITIONS = AMB TEMP/RH 178
 TEST CONDITIONS = AMB TEMP/RH



STAGE 1 WING 6, TP-H 1011 TENSILE, CHS 1750.0 EGI 1.75 (SA 0.1875 TP 0950 EF

HYDROSTATIC TENSILE

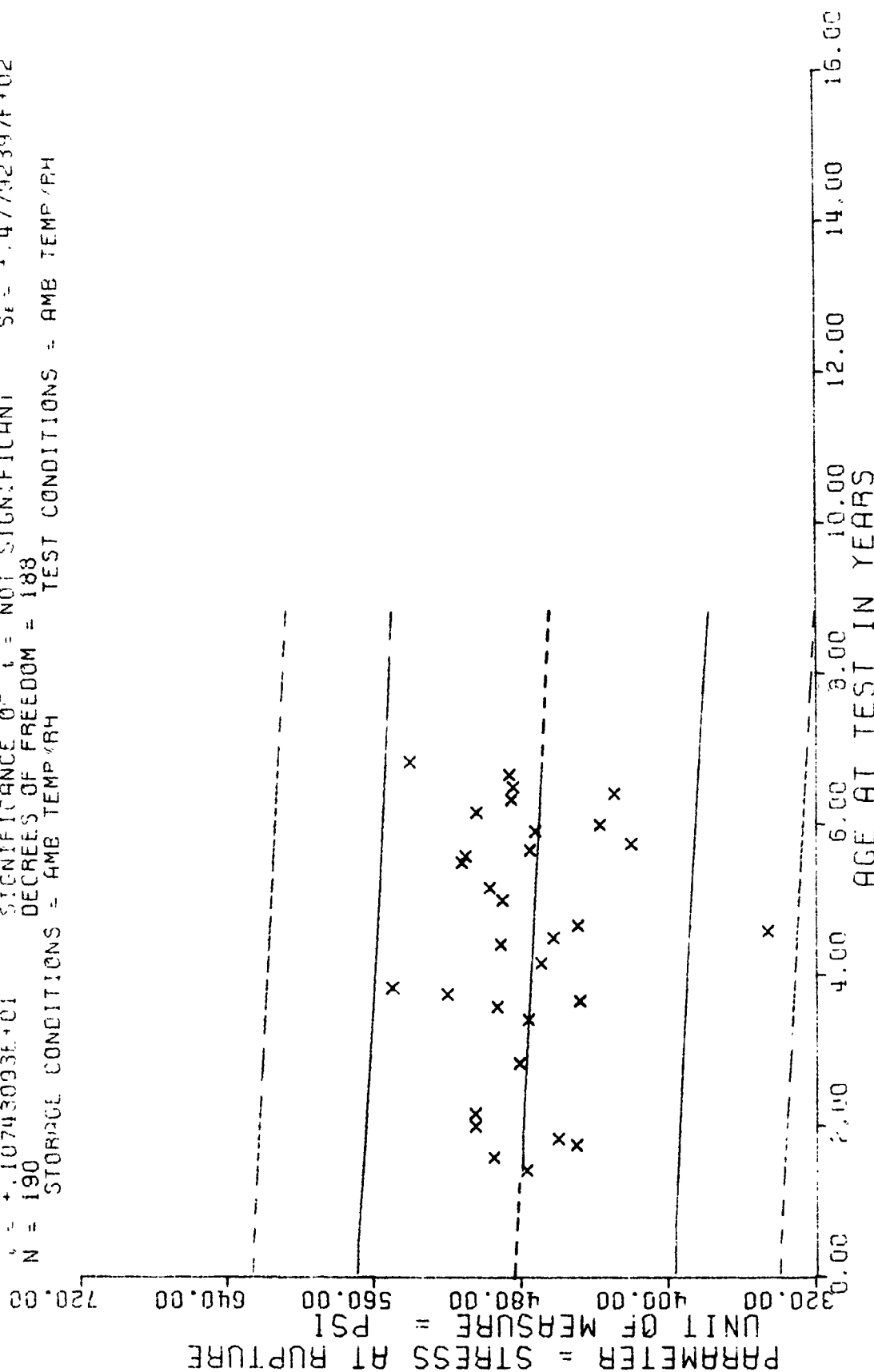
Figure 23

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
17.0	5	44.0	5	62.0	5	77.0	10
19.0	5	45.0	4	66.0	5	78.0	10
21.0	5	46.0	1	67.0	5	80.0	5
22.0	5	50.0	5	68.0	5	82.0	5
24.0	5	53.0	5	69.0	10		
26.0	10	54.0	10	71.0	10		
34.0	5	55.0	5	72.0	5		
41.0	10	56.0	10	74.0	5		
43.0	5	60.0	5	76.0	5		
							190

Stage 1 Wing 6, TP-H 1011 Tensile, CHS 1750.0 EGL 1.75 CSA 0.1875 TP 0950 SR
Hydrostatic Tensile

$Y = (+.48323256E+03) + (-.18916246E+00) \times X$
 F = +.11541406E+01 SIGNIFICANCE OF F = NOT SIGNIFICANT $G_1 = +.47811881E+02$
 R = -.78112663E-01 SIGNIFICANCE OF R = NOT SIGNIFICANT $S_1 = +.17607818E+00$
 N = 190 SIGNIFICANCE OF t = NOT SIGNIFICANT $S_2 = +.47792397E+02$
 DEGREES OF FREEDOM = 188
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH

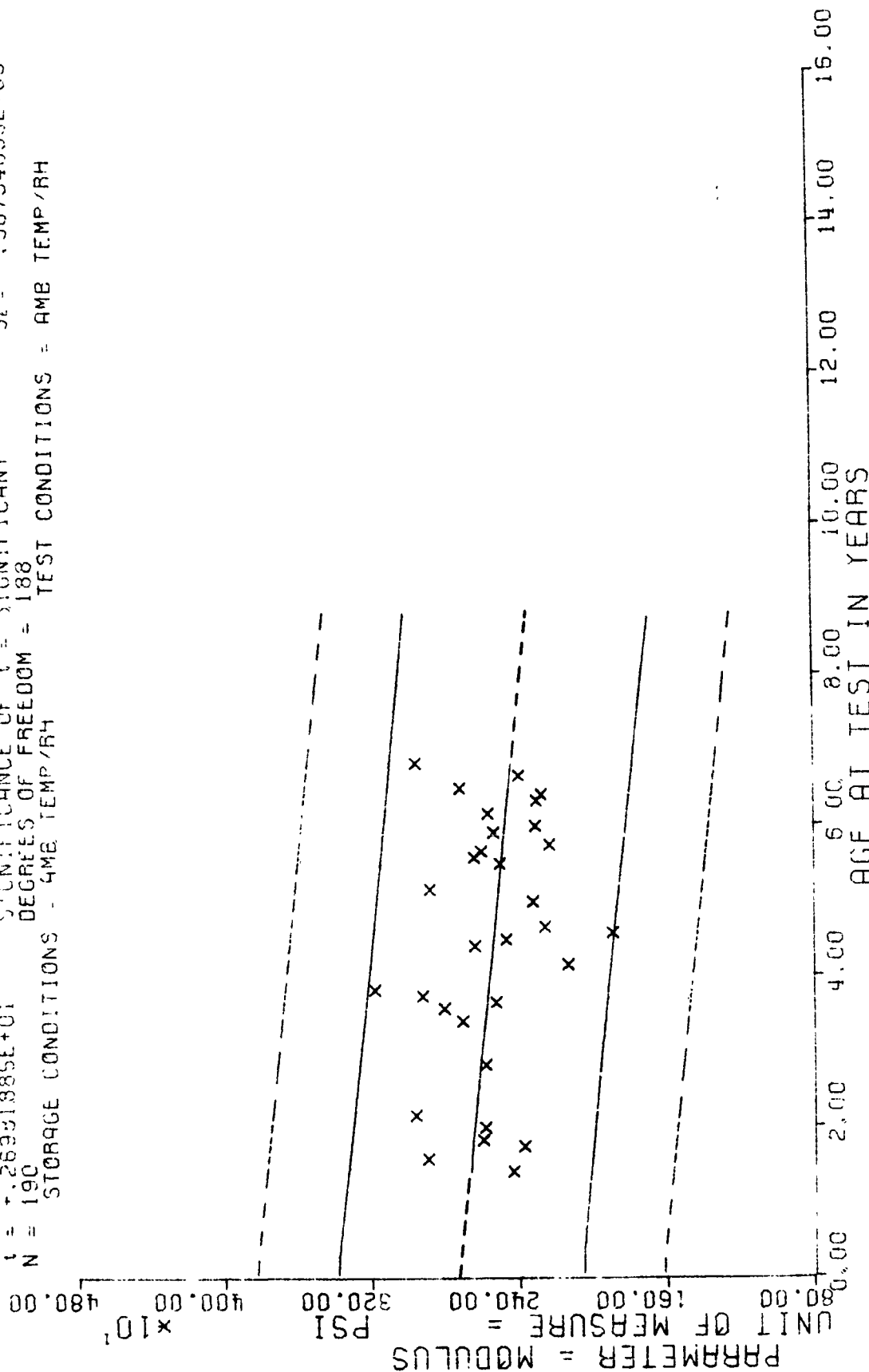


SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
17.0	5	44.0	5	62.0	5	77.0	10
19.0	5	45.0	5	66.0	5	78.0	10
21.0	5	46.0	1	67.0	5	80.0	5
22.0	5	50.0	5	68.0	5	82.0	5
24.0	5	53.0	5	69.0	10		
26.0	10	54.0	10	71.0	10		
34.0	5	55.0	5	72.0	5		
41.0	10	56.0	10	74.0	5		
43.0	5	60.0	5	76.0	5		
							190

Stage 1 Wing 6, TP-H 1011 Tensile, CHS 1750.0 EGL 1.75, CSA 0.1875 TP 0950 MD
Hydrostatic Tensile

$F = +.72802214E+01$ SIGNIFICANCE OF F = SIGNIFICANT
 $R = -.19308261E+00$ SIGNIFICANCE OF R = SIGNIFICANT
 $t = +.26331385E+01$ SIGNIFICANCE OF t = SIGNIFICANT
 $N = 190$ DEGREES OF FREEDOM = 188
 STORAGE CONDITIONS = 4MB TEMP/RH TEST CONDITIONS = AMB TEMP/RH



STAGE 1 WING 5, TP-H 1011 TENSILE, CHS 1750.0 EGL 1.75 CSA 0.1875 TP 0950 MD

HYDROSTATIC TENSILE

Figure 25

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
5.0	2	23.0	5	51.0	5	72.0	9
6.0	8	25.0	5	52.0	4	74.0	9
7.0	8	26.0	5	53.0	11	75.0	6
8.0	6	28.0	5	55.0	5	76.0	10
9.0	12	31.0	5	57.0	5	77.0	5
10.0	6	33.0	5	59.0	5	79.0	5
11.0	15	35.0	10	60.0	10	80.0	5
12.0	13	36.0	10	61.0	5		565
13.0	25	38.0	5	62.0	14		
14.0	24	39.0	10	63.0	1		
15.0	30	40.0	5	64.0	10		
16.0	27	42.0	5	65.0	15		
17.0	12	43.0	10	66.0	10		
18.0	26	46.0	5	67.0	5		
19.0	11	47.0	5	68.0	15		
20.0	10	48.0	17	69.0	5		
21.0	4	49.0	8	70.0	20		
22.0	1	50.0	5	71.0	6		

Stage 1, Wing 6, TP-H 1011, Creep Compliance at 10 sec, 12 pound Load

$Y = (.31712231E+03) + (-.31687820E-05) \times X$
 F = +.31712231E+03 SIGNIFICANCE OF F = SIGNIFICANT $G_1 = +.32373989E-03$
 R = -.60026343E+00 SIGNIFICANCE OF R = SIGNIFICANT $S_1 = +.45871587E-03$
 t = +.17807928E+02 SIGNIFICANCE OF t = SIGNIFICANT $S_2 = +.25915778E-03$
 N = 565 DEGREES OF FREEDOM = 563
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH 12 #

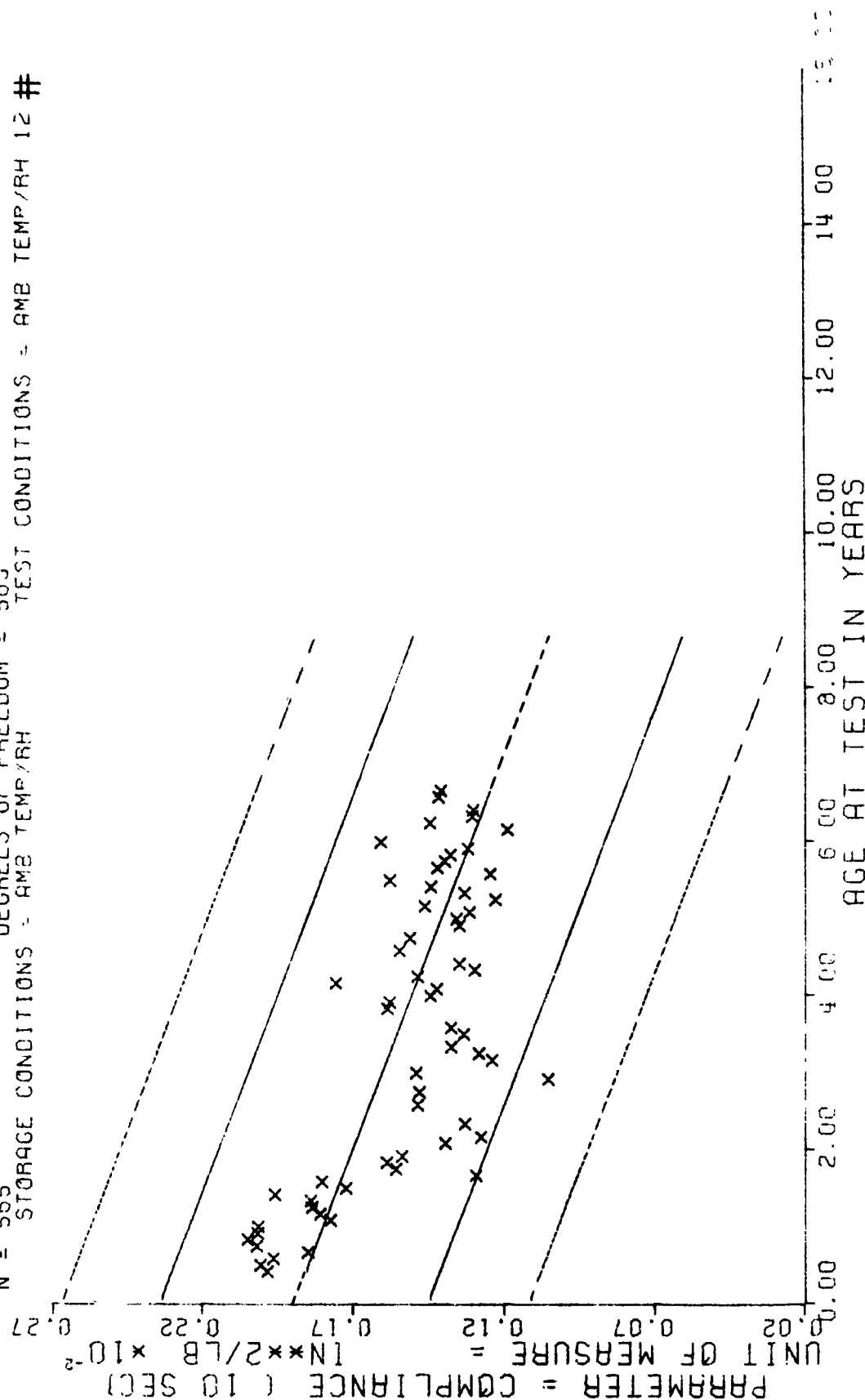


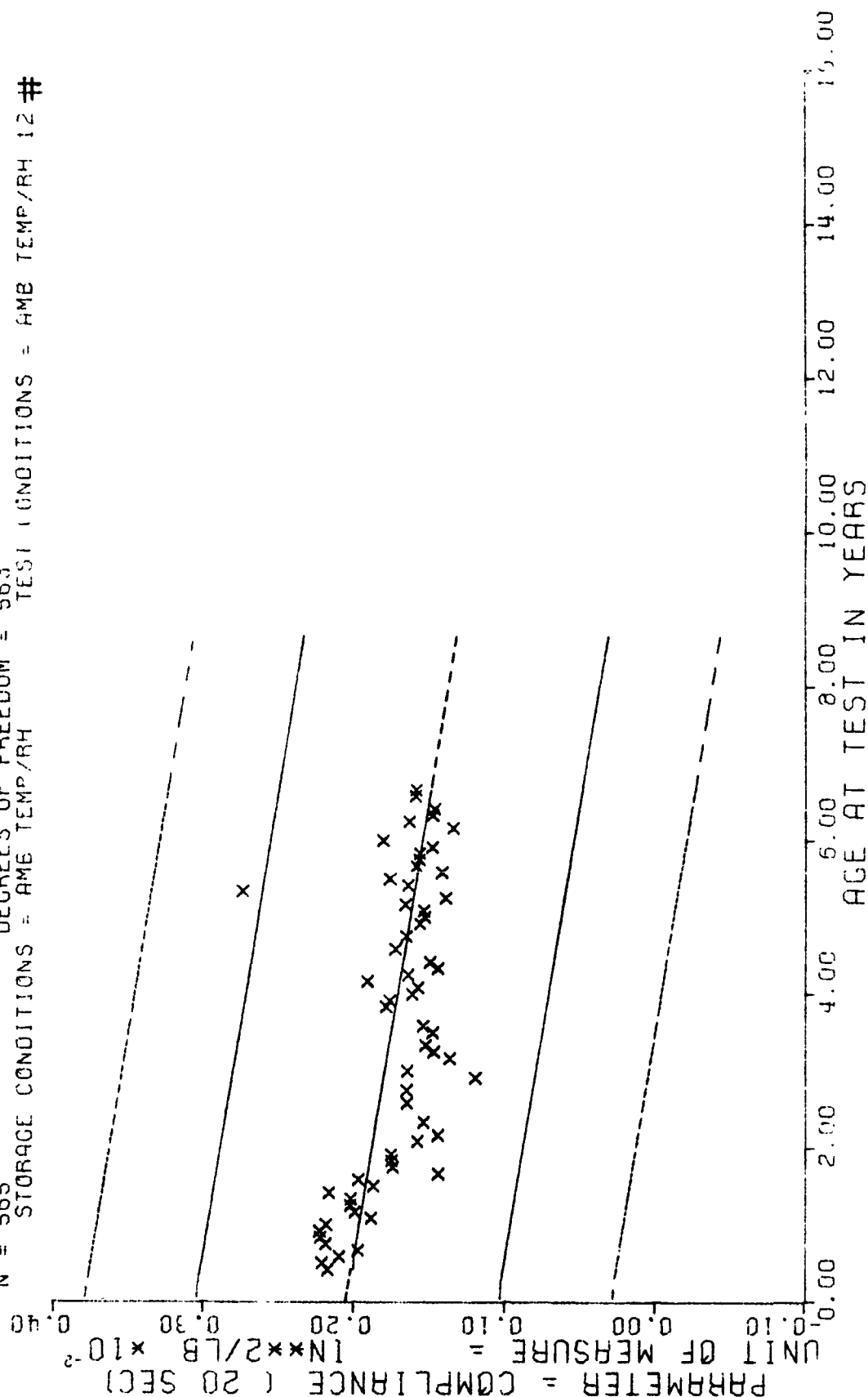
Figure 26

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
5.0	2	51.0	5	72.0	9
6.0	8	52.0	5	74.0	9
7.0	8	53.0	5	75.0	6
8.0	6	55.0	5	76.0	10
9.0	12	57.0	5	77.0	5
10.0	6	59.0	5	79.0	5
11.0	15	60.0	10	80.0	5
12.0	13	61.0	10		565
13.0	25	62.0	5		
14.0	24	63.0	10		
15.0	30	64.0	5		
16.0	27	65.0	5		
17.0	12	66.0	10		
18.0	26	67.0	5		
19.0	11	68.0	5		
20.0	10	69.0	17		
21.0	4	70.0	8		
22.0	1	71.0	5		

Stage 1, Wing 6, TP-H 1011, Creep Compliance at 20 Sec, 12 Pound Load

$Y = (+.20462765E-07) + (-.70971619E-05) * X$
 SIGNIFICANCE OF F = SIGNIFICANT
 SIGNIFICANCE OF R = SIGNIFICANT
 SIGNIFICANCE OF t = SIGNIFICANT
 DEGREES OF FREEDOM = 563
 N = 565
 STORAGE CONDITIONS = AMB TEMP/RH
 TEST CONDITIONS = AMB TEMP/RH 12 #



STAGE 1, WING 5, TP-H 1011, CREEP COMPLIANCE AT 20 SEC. 12 POUND LOAD

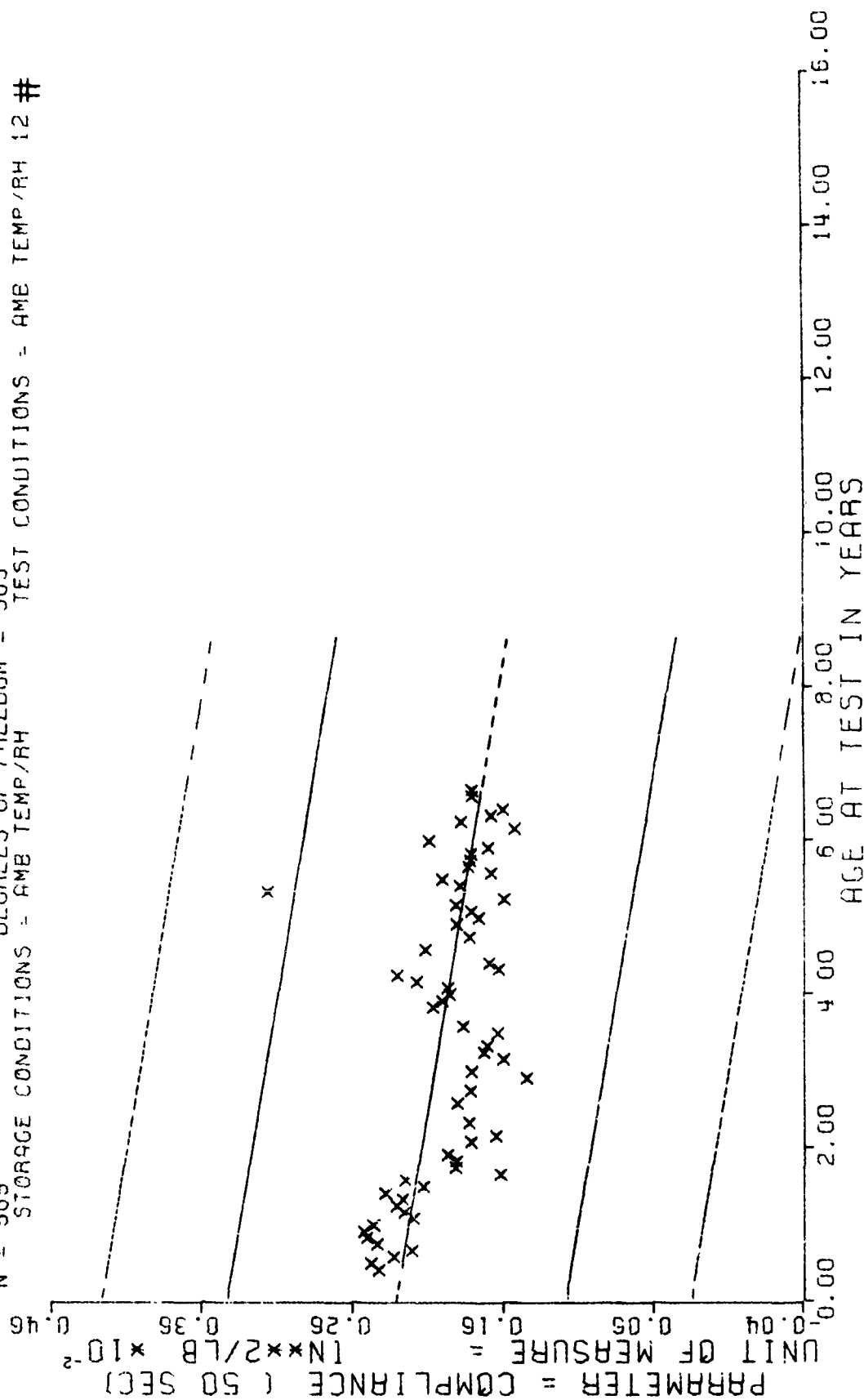
Figure 27

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
5.0	2	23.0	5	51.0	5	72.0	9
6.0	8	25.0	5	52.0	4	74.0	9
7.0	8	26.0	5	53.0	11	75.0	6
8.0	6	28.0	5	55.0	5	76.0	10
9.0	12	31.0	5	57.0	5	77.0	5
10.0	6	33.0	5	59.0	5	79.0	5
11.0	15	35.0	10	60.0	10	80.0	5
12.0	13	36.0	10	61.0	5		
13.0	25	38.0	5	62.0	14		
14.0	24	39.0	10	63.0	1		
15.0	30	40.0	5	64.0	10		
16.0	27	42.0	5	65.0	15		
17.0	12	43.0	10	66.0	10		
18.0	26	46.0	5	67.0	5		
19.0	11	47.0	5	68.0	15		
20.0	10	48.0	17	69.0	5		
21.0	4	49.0	8	70.0	20		
22.0	1	50.0	5	71.0	6		
							565

Stage 1, Wing 6, TP-H 1011, Creep Compliance at 50 Sec, 12 Pound Load

$f = (+.23100828E-02) + (-.71704030E-05) \times X$
 F = +.38324909E+02 SIGNIFICANCE OF F = SIGNIFICANT $G_T = +.67567632E-03$
 R = -.25245615E+00 SIGNIFICANCE OF R = SIGNIFICANT $S_e = +.11158252E-05$
 t = +.61907115E+01 SIGNIFICANCE OF t = SIGNIFICANT $S_f = +.05437041E-03$
 N = 565 DEGREES OF FREEDOM = 563
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH 12 #



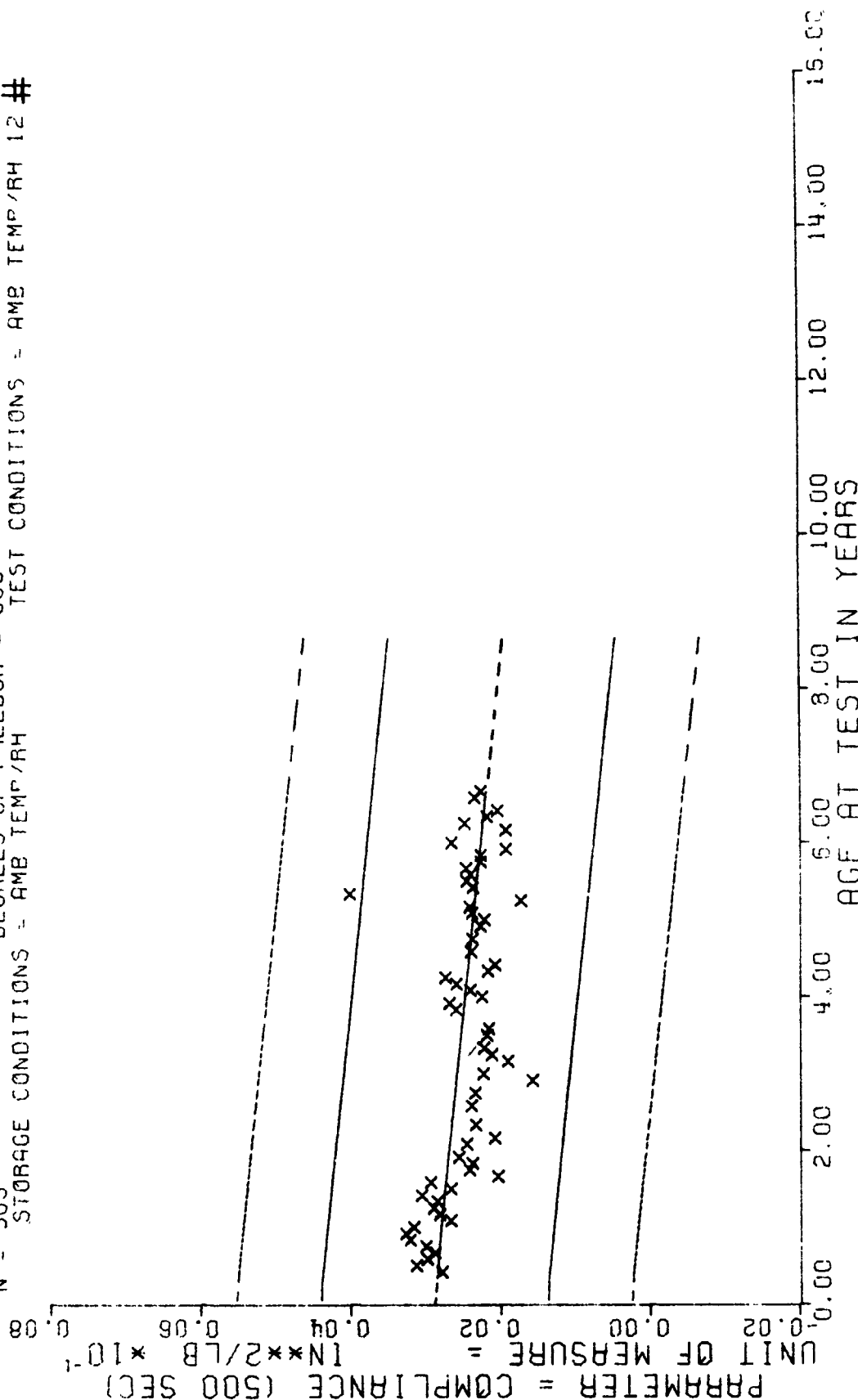
STAGE 1, WING G. TP-H 1011, CREEP COMPLIANCE AT 50 SEC. 12 POUND LOAD

Figure 28

[illegible]

- 68 -

$F = +.34847021E+02$ SIGNIFICANCE OF F = SIGNIFICANT $G_T = +.90612253E-03$
 $R = -.24142803E+00$ SIGNIFICANCE OF R = SIGNIFICANT $S_A = +.15577978E-05$
 $t = +.59031365E+01$ SIGNIFICANCE OF t = SIGNIFICANT $S_F = +.88009833E-03$
 $N = 565$ DEGREES OF FREEDOM = 563
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH 12 #



STAGE 1, WING 6, TP-H 1011 CREEP COMPLIANCE AT 500 SEC, 12 POUND LOAD

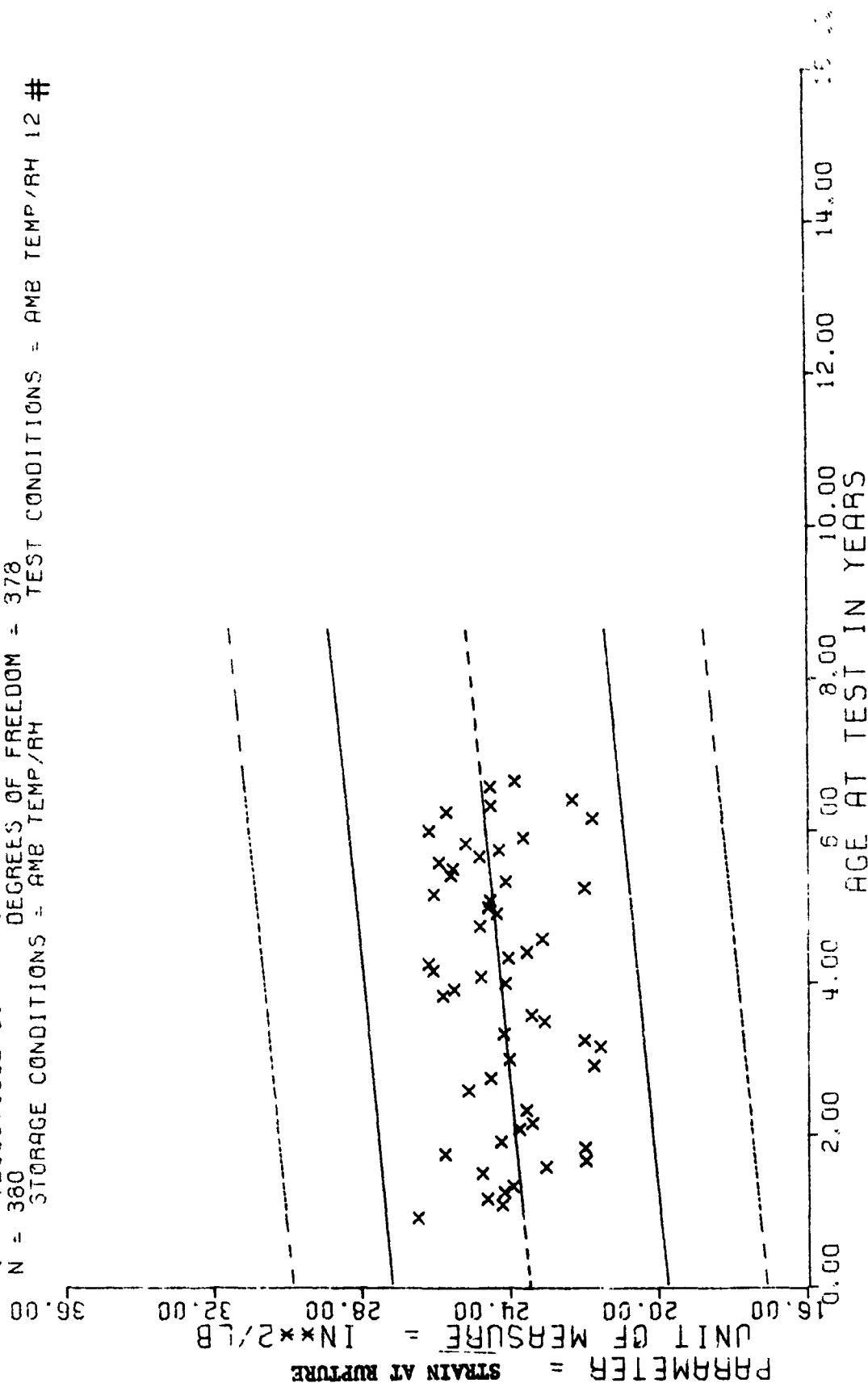
Figure 29

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
11.0	5	38.0	5	62.0	14
13.0	5	39.0	10	63.0	1
14.0	5	40.0	5	64.0	10
15.0	5	42.0	5	65.0	15
16.0	5	43.0	10	66.0	10
18.0	10	46.0	5	67.0	5
19.0	5	47.0	5	68.0	15
20.0	10	48.0	17	69.0	5
21.0	4	49.0	8	70.0	20
22.0	1	50.0	5	71.0	6
23.0	5	51.0	5	72.0	9
25.0	5	52.0	4	74.0	9
26.0	5	53.0	11	75.0	6
28.0	5	55.0	5	76.0	10
31.0	5	57.0	5	77.0	5
33.0	5	59.0	5	79.0	5
35.0	10	60.0	10	80.0	5
36.0	10	61.0	5		380

Stage 1, Wing 6, TP-H 1011, Creep Compliance to Failure, 12 Pound Load

$F = +.82986104E+01$ SIGNIFICANCE OF F = SIGNIFICANT $G_r = +.21512894E+01$
 $R = +.14656865E+00$ SIGNIFICANCE OF R = SIGNIFICANT $S_p = +.55440253E-02$
 $t = +.23807303E+01$ SIGNIFICANCE OF t = SIGNIFICANT $S_e = +.21308696E+01$
 $N = 380$ DEGREES OF FREEDOM = 378
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH 12 #



STAGE 1, WING 6, TP-H 1011, CREEP COMPLIANCE TO FAILURE, 12 POUND LOAD

Figure 30

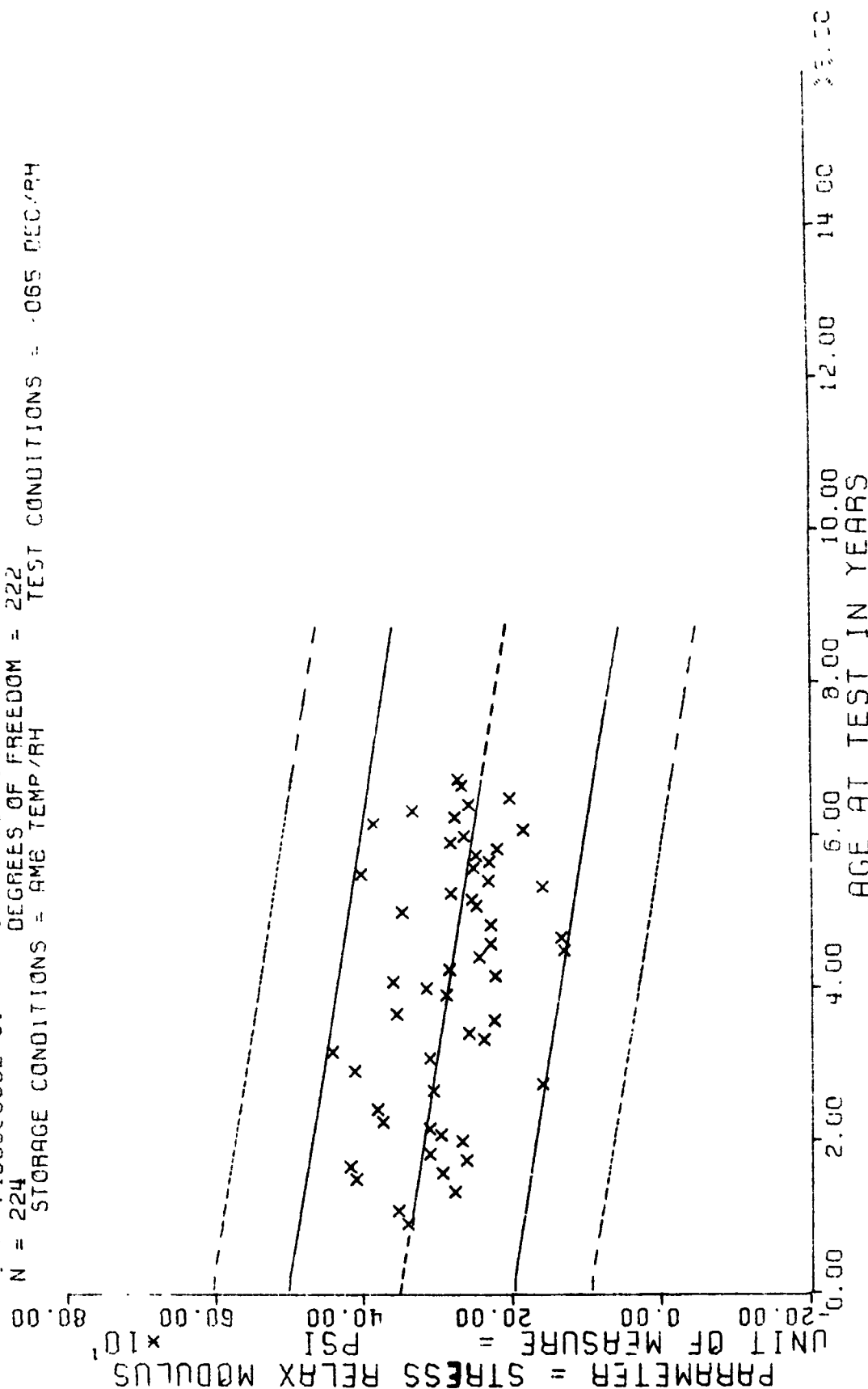
SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
11.0	3	40.0	6	64.0	3
13.0	3	41.0	3	65.0	9
16.0	6	43.0	6	66.0	2
18.0	3	44.0	3	67.0	6
19.0	3	47.0	3	68.0	3
20.0	6	48.0	9	69.0	6
21.0	3	49.0	3	70.0	6
22.0	3	50.0	6	71.0	12
24.0	3	51.0	3	72.0	3
25.0	3	53.0	6	73.0	3
26.0	3	54.0	3	74.0	2
27.0	3	55.0	3	75.0	3
29.0	3	56.0	3	76.0	6
32.0	3	58.0	3	77.0	6
33.0	3	60.0	3	78.0	3
35.0	6	61.0	5	80.0	3
37.0	6	62.0	5	81.0	3
38.0	3	63.0	6		<u>224</u>

Stage 1, Wing 6, TP-H 1011 Stress Relaxation Modulus, 0.5% Strain, 10 Sec

-65°

$F = +.23412637E+02$ SIGNIFICANCE OF F = SIGNIFICANT $G_1 = +.89157074E+02$
 $R = -.30587069E+00$ SIGNIFICANCE OF R = SIGNIFICANT $S_0 = +.28748164E+02$
 $t = +.48386606E+01$ SIGNIFICANCE OF t = SIGNIFICANT $S_1 = +.34988425E+02$
 $N = 224$ DEGREES OF FREEDOM = 222 TEST CONDITIONS = .065 DEC/PH
 STORAGE CONDITIONS = AMB TEMP/RH



STAGE 1, WING G. TP-H 1011 STRESS RELAXATION MODULUS, 0.5% STRAIN, 10 SEC

Figure 31

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
11.0	3	40.0	6	64.0	3
13.0	3	41.0	3	65.0	9
16.0	6	43.0	6	66.0	2
18.0	3	44.0	3	67.0	6
19.0	3	47.0	3	68.0	3
20.0	6	48.0	9	69.0	6
21.0	3	49.0	3	70.0	6
22.0	3	50.0	6	71.0	12
24.0	3	51.0	3	72.0	3
25.0	3	53.0	6	73.0	3
26.0	3	54.0	3	74.0	2
27.0	3	55.0	3	75.0	3
29.0	3	56.0	3	76.0	6
32.0	3	58.0	3	77.0	6
33.0	3	60.0	3	78.0	3
35.0	6	61.0	5	80.0	3
37.0	6	62.0	5	81.0	3
38.0	3	63.0	6		<u>224</u>

Stage 1, Wing 6, TP-H 1011 Stress Relaxation Modulus, 0.5% Strain, 50 Sec

-65°

$Y = (+.29002332E+03) + (-.11162417E+01) * X$
 $F = +.13751113E+02$ SIGNIFICANCE OF F = SIGNIFICANT $G_1 = +.77311402E+02$
 $R = -.28583249E+00$ SIGNIFICANCE OF R = SIGNIFICANT $S_2 = +.25116687E+00$
 $t = +.44442230E+01$ SIGNIFICANCE OF t = SIGNIFICANT $S_1 = +.74252612E+02$
 $N = 224$ DEGREES OF FREEDOM = 222
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = -065 DEG/RH

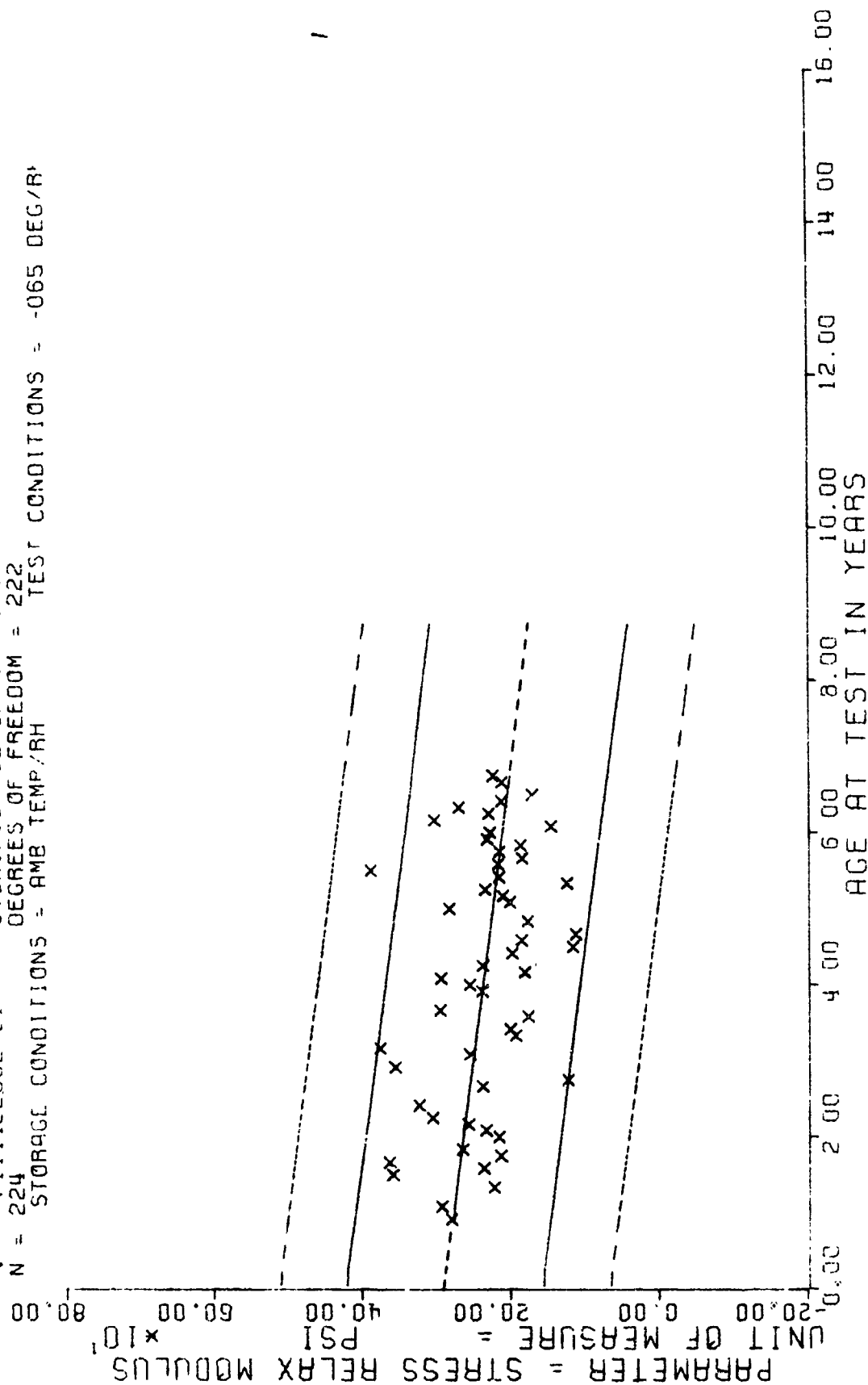


Figure 32

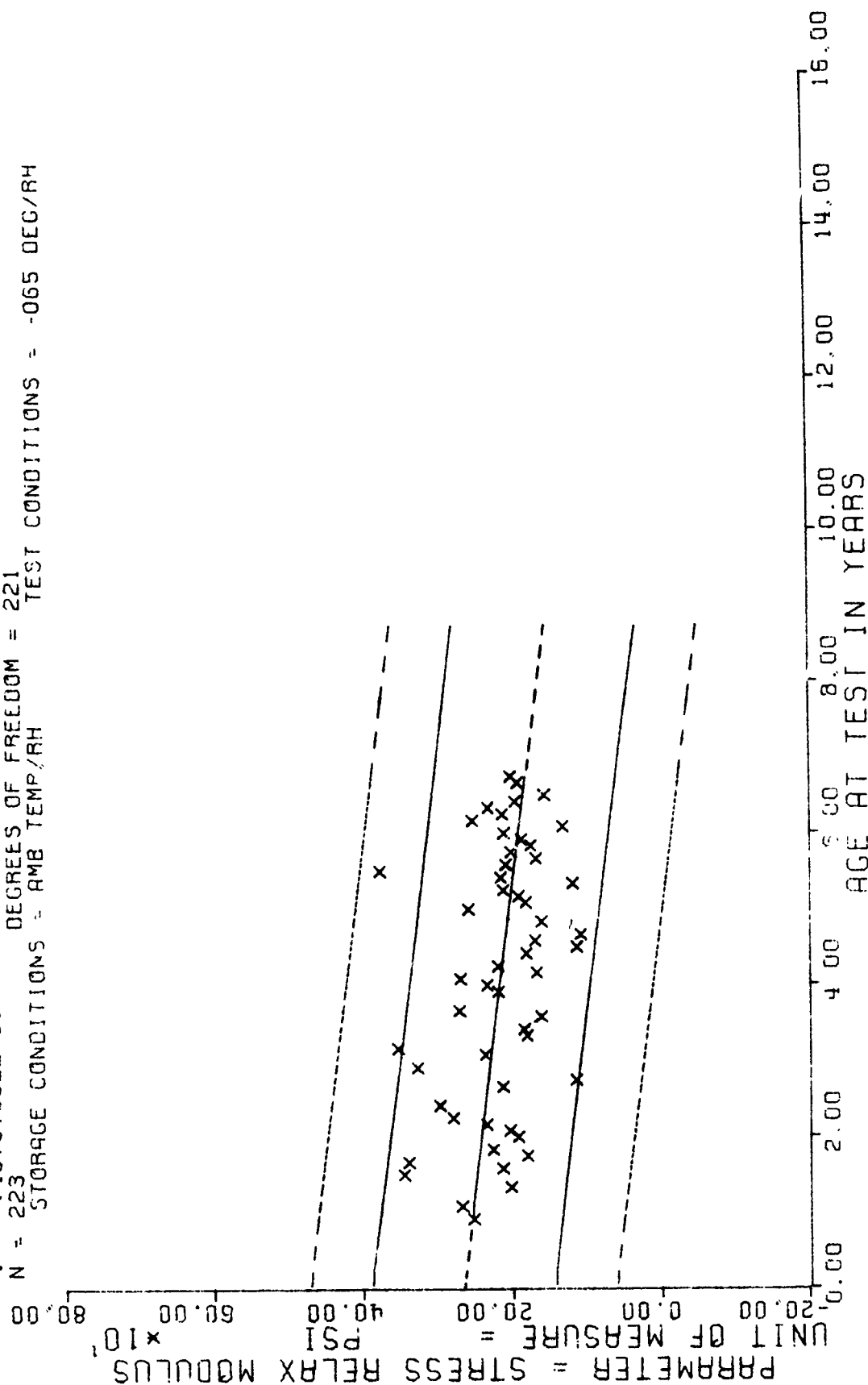
SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
11.0	3	40.0	6	64.0	3
13.0	3	41.0	3	65.0	9
16.0	6	43.0	6	66.0	2
18.0	3	44.0	3	67.0	6
19.0	3	47.0	3	68.0	3
20.0	6	48.0	9	69.0	6
21.0	3	49.0	3	70.0	6
22.0	3	50.0	6	71.0	11
24.0	3	51.0	3	72.0	3
25.0	3	53.0	6	73.0	3
26.0	3	54.0	3	74.0	2
27.0	3	55.0	3	75.0	3
29.0	3	56.0	3	76.0	6
32.0	3	58.0	3	77.0	6
33.0	3	60.0	3	78.0	3
35.0	6	61.0	5	80.0	3
37.0	6	62.0	5	81.0	3
38.0	3	63.0	6		<u>223</u>

Stage 1, Wing 6, TP-H 1011 Stress Relaxation Modulus, 0.5% Strain, 100 Sec

-65°

$Y = (+.26798342E+03) + (-.10846836E+01) * X$
 SIGNIFICANCE OF F = SIGNIFICANT $G_1 = +.71559228E+02$
 SIGNIFICANCE OF R = SIGNIFICANT $S_0 = +.23196635E+00$
 SIGNIFICANCE OF I = SIGNIFICANT $S_1 = +.68416267E+02$
 N = 223 DEGREES OF FREEDOM = 221
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = -065 DEG/RH



STAGE 1, WING G, TP-H 1011 STRESS RELAXATION MODULUS, 0.5% STRAIN, 100 SEC

Figure 33

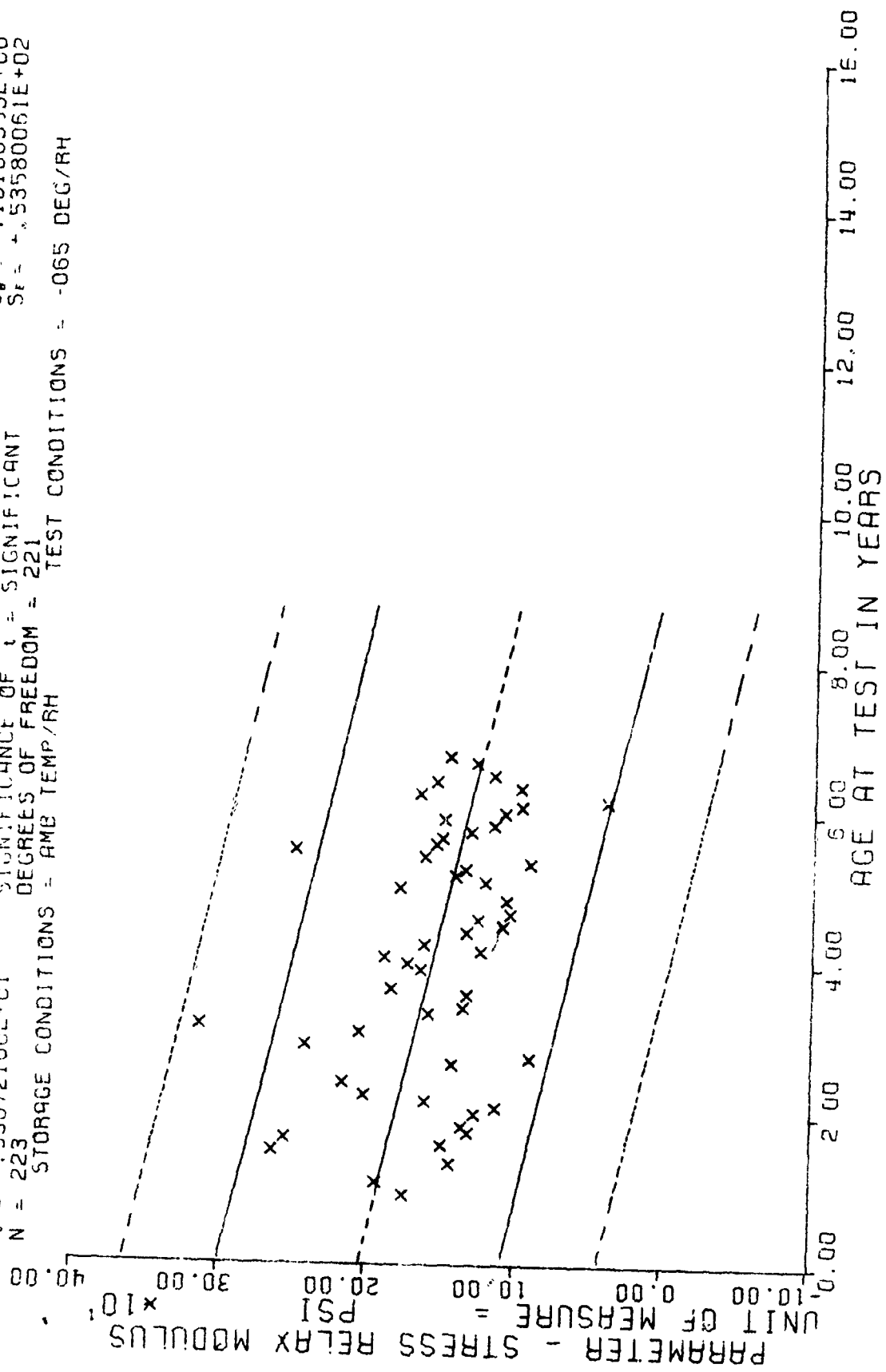
SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
11.0	3	40.0	6	64.0	3
13.0	3	41.0	3	65.0	9
16.0	6	43.0	6	66.0	2
18.0	3	44.0	3	67.0	6
19.0	3	47.0	3	68.0	3
20.0	6	48.0	9	69.0	6
21.0	3	49.0	3	70.0	6
22.0	3	50.0	6	71.0	11
24.0	3	51.0	3	72.0	3
25.0	3	53.0	6	73.0	3
26.0	3	54.0	3	74.0	2
27.0	3	55.0	3	75.0	3
29.0	3	56.0	3	76.0	6
32.0	3	58.0	3	77.0	6
33.0	3	60.0	3	78.0	3
35.0	6	61.0	5	80.0	3
37.0	6	62.0	5	81.0	3
38.0	3	63.0	6		<u>223</u>

Stage 1, Wing 6, TP-H 1011 Stress Relaxation Modulus, 0.5% Strain, 100C Sec

-65°

$F = +.29022031E+02$ SIGNIFICANCE OF $F =$ SIGNIFICANT
 $R = -.34070206E+00$ SIGNIFICANCE OF $R =$ SIGNIFICANT
 $t = +.53872100E+01$ SIGNIFICANCE OF $t =$ SIGNIFICANT
 $N = 223$ DEGREES OF FREEDOM = 221
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = -065 DEG/RH
 $\gamma = (+.20402795E+03) + (-.97866208E+00) * X$
 $\sigma_r = +.56861178E+02$
 $S_e = +.18166398E+00$
 $S_F = +.53580061E+02$



STAGE 1, WING 6, TP-H 1011 PRESS RELAXATION MODULUS, 0.5% STRAIN, 1000 SEC

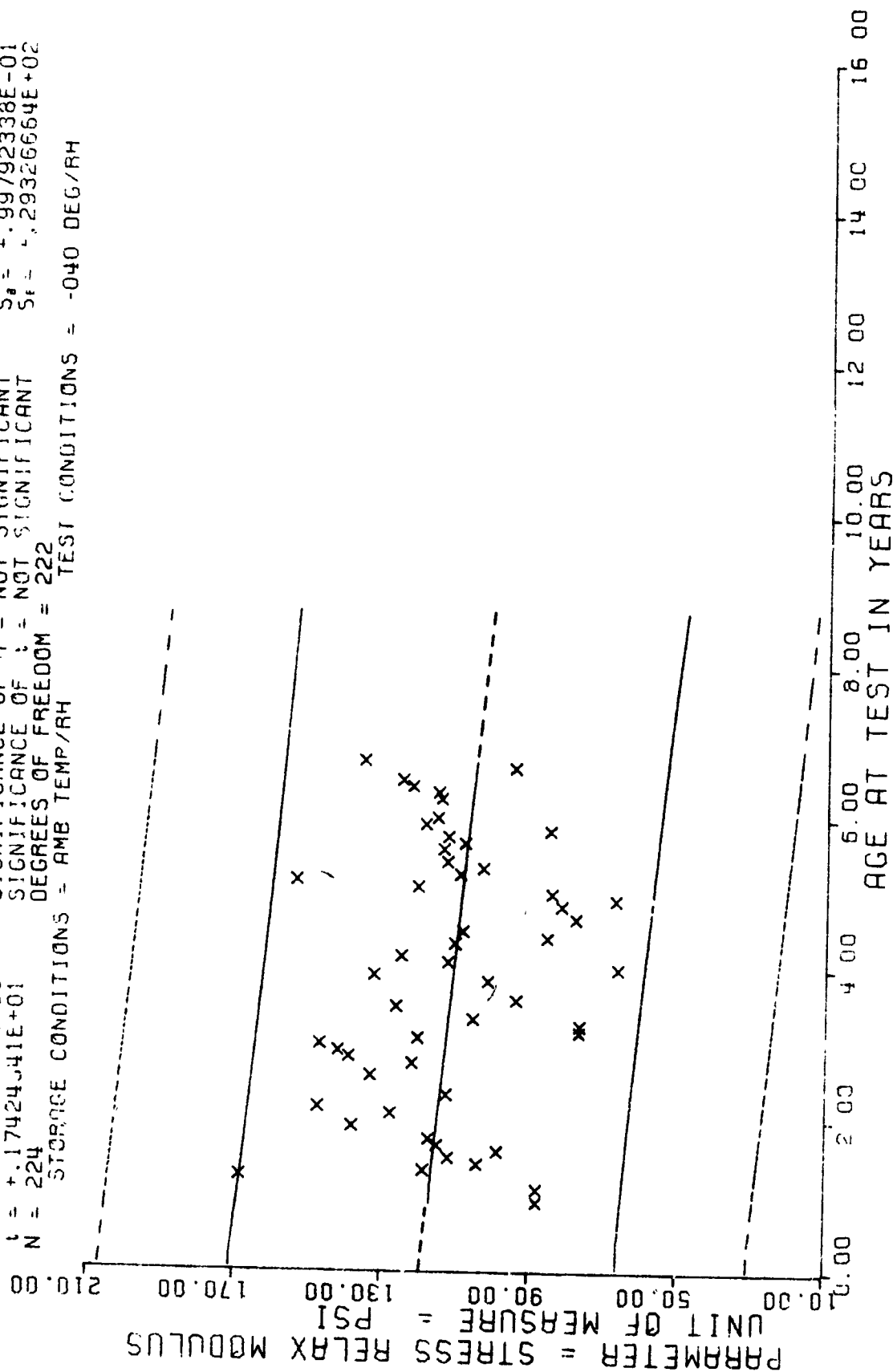
Figure 34

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
11.0	2	37.0	3	61.0	9
13.0	3	38.0	3	62.0	3
15.0	3	39.0	3	63.0	3
16.0	3	40.0	6	64.0	6
17.0	3	42.0	3	65.0	9
18.0	3	43.0	5	67.0	6
19.0	3	46.0	3	68.0	6
20.0	6	47.0	3	69.0	3
21.0	3	48.0	9	70.0	11
23.0	3	49.0	6	71.0	6
25.0	3	50.0	3	72.0	9
26.0	6	52.0	3	75.0	6
28.0	3	53.0	6	76.0	5
31.0	3	54.0	3	77.0	3
33.0	3	56.0	3	78.0	3
34.0	3	58.0	3	80.0	3
35.0	3	59.0	3	81.0	3
36.0	3	60.0	3		3
					224

Stage 1, Wing 6, TP-H 1011 Stress Relaxation Modulus, 0.5% Strain, 10 Sec
-040°

$F = +.30360762E+01$
 $R = -.11615296E+00$
 $t = +.1742441E+01$
 $N = 224$
 $Y = (+.11900958E+03) + (-.17383158E+00) \cdot X$
 SIGNIFICANCE OF F = NOT SIGNIFICANT
 SIGNIFICANCE OF R = NOT SIGNIFICANT
 SIGNIFICANCE OF t = NOT SIGNIFICANT
 DEGREES OF FREEDOM = 222
 STORAGE CONDITIONS = AMB TEMP/RH
 TEST CONDITIONS = -040 DEG/RH



STAGE 1, WING 6, F-P-H 1011 STRESS RELAXATION MODULUS, 0.5% STRAIN, 10 SEC

Figure 35

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
11.0	2	37.0	3	61.0	9
13.0	3	38.0	3	62.0	3
15.0	3	39.0	3	63.0	3
16.0	3	40.0	6	64.0	6
17.0	3	42.0	3	65.0	9
18.0	3	43.0	5	67.0	6
19.0	3	46.0	3	68.0	6
20.0	6	47.0	3	69.0	3
21.0	3	48.0	9	70.0	11
23.0	3	49.0	6	71.0	6
25.0	3	50.0	3	72.0	9
26.0	6	52.0	3	75.0	6
28.0	3	53.0	6	76.0	5
31.0	3	54.0	3	77.0	3
33.0	3	56.0	3	78.0	3
34.0	3	58.0	3	80.0	3
35.0	3	59.0	3	81.0	3
36.0	3	60.0	3		3
					224

Stage 1, Wing 6, TP-H 1011 Stress Relaxation Modulus, 0.5% Strain, 50 Sec
-040°

$F = +.62461533E+01$
 $R = -.16542631E+00$
 $t = +.24992305E+01$
 $N = 224$
 $Y = (+.91949373E+02) + (-.18659547E+00) * X$
 SIGNIFICANCE OF F = SIGNIFICANT
 SIGNIFICANCE OF R = SIGNIFICANT
 SIGNIFICANCE OF t = SIGNIFICANT
 DEGREES OF FREEDOM = 222
 STORAGE CONDITIONS = AMB TEMP/RH
 TEST CONDITIONS = -040 DEG/RH
 $G_1 = +.22197780E+02$
 $S_1 = +.74661152E-01$
 $S_2 = +.21941193E+02$

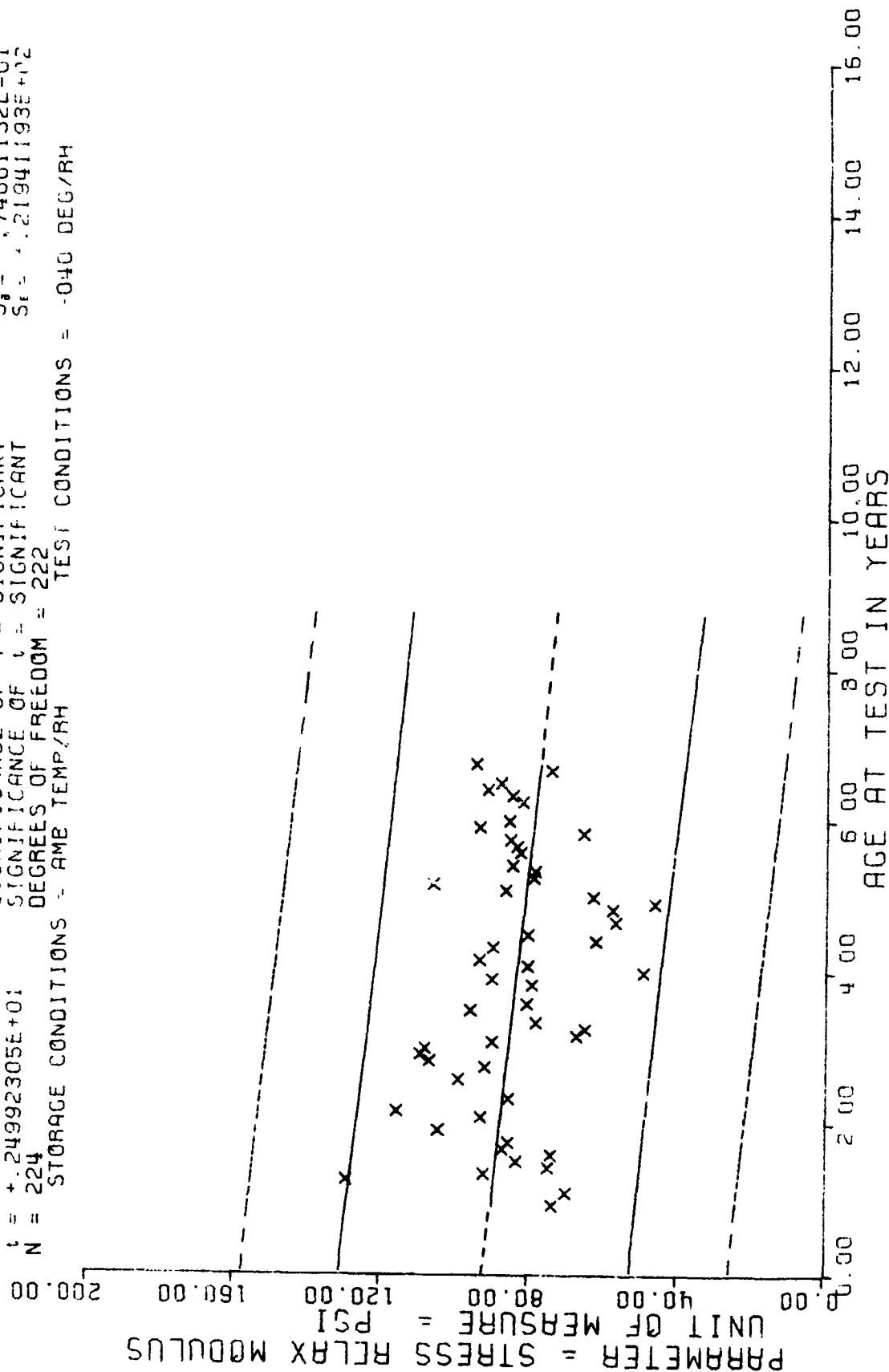


Figure 36

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
11.0	2	37.0	3	61.0	9
13.0	3	38.0	3	62.0	3
15.0	3	39.0	3	63.0	3
16.0	3	40.0	6	64.0	6
17.0	3	42.0	3	65.0	9
18.0	3	43.0	5	67.0	6
19.0	3	46.0	3	68.0	6
20.0	6	47.0	3	69.0	3
21.0	3	48.0	9	70.0	11
23.0	3	49.0	6	71.0	6
25.0	3	50.0	3	72.0	9
26.0	6	52.0	3	75.0	6
28.0	3	53.0	6	76.0	5
31.0	3	54.0	3	77.0	3
33.0	3	56.0	3	78.0	3
34.0	3	58.0	3	80.0	3
35.0	3	59.0	3	81.0	3
36.0	3	60.0	3		3
					224

Stage 1, Wing 6, TP-H 1011 Stress Relaxation Modulus, 0.5% Strain, 100 Sec
-040°

$F = +.96788008E+01$
 $R = -.20439375E+00$
 $t = +.31110771E+01$
 $N = 224$
 $Y = (+.83585047E+02) + (-.20309224E+00) * X$
 SIGNIFICANCE OF F = SIGNIFICANT
 SIGNIFICANCE OF R = SIGNIFICANT
 SIGNIFICANCE OF t = SIGNIFICANT
 DEGREES OF FREEDOM = 222
 STORAGE CONDITIONS = AMB TEMP/RH
 TEST CONDITIONS = -040 DEG/RH
 $S_y = +.19554140E+02$
 $S_a = +.65280354E-01$
 $S_e = +.19184391E+02$

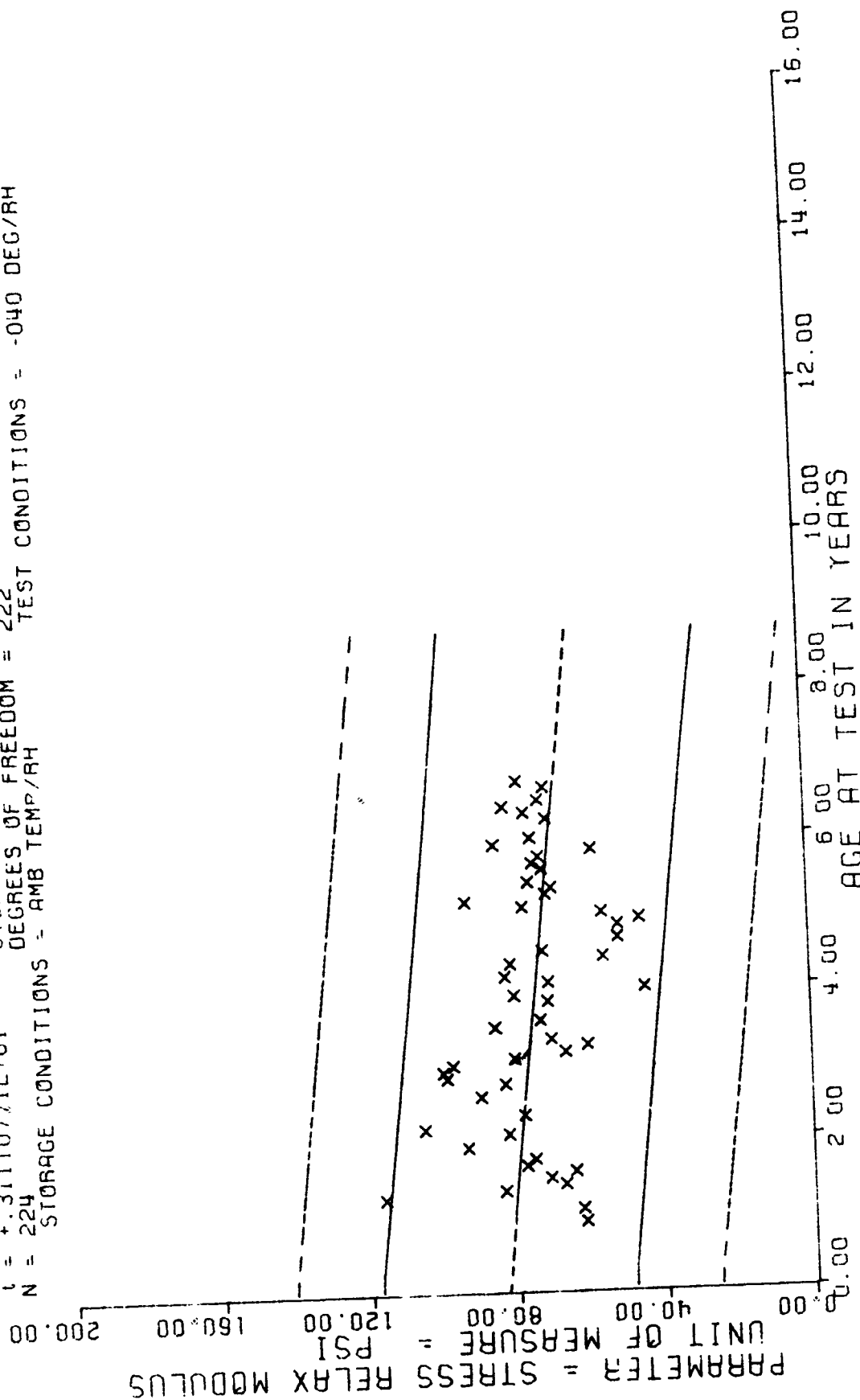


Figure 37

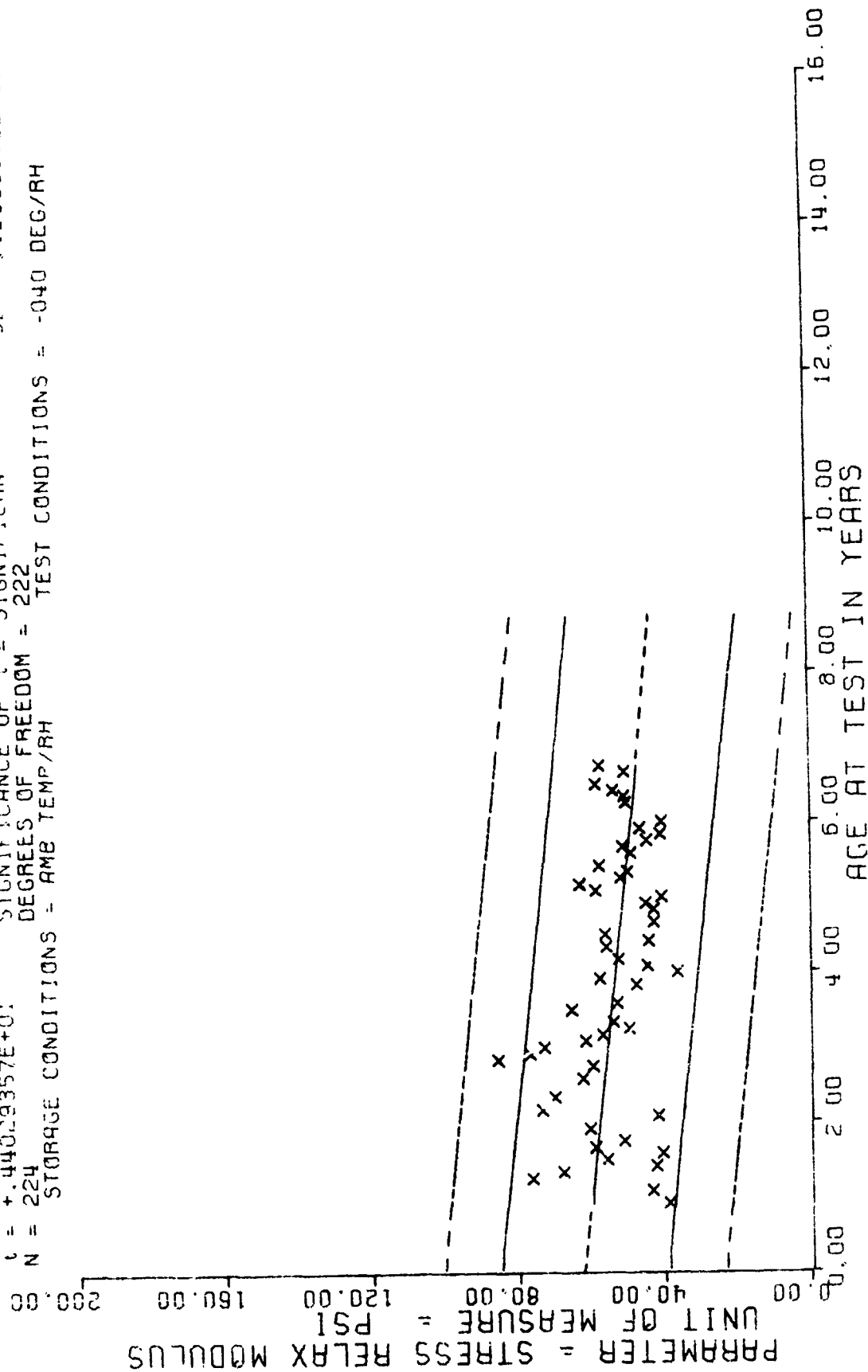
SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
11.0	2	37.0	3	61.0	9
13.0	3	38.0	3	62.0	3
15.0	3	39.0	3	63.0	3
16.0	3	40.0	6	64.0	6
17.0	3	42.0	3	65.0	9
18.0	3	43.0	5	67.0	6
19.0	3	46.0	3	68.0	6
20.0	6	47.0	3	69.0	3
21.0	3	48.0	9	70.0	11
23.0	3	49.0	6	71.0	6
25.0	3	50.0	3	72.0	9
26.0	6	52.0	3	75.0	6
28.0	3	53.0	6	76.0	5
31.0	3	54.0	3	77.0	3
33.0	3	56.0	3	78.0	3
34.0	3	58.0	3	80.0	3
35.0	3	59.0	3	81.0	3
36.0	3	60.0	3		224

Stage 1, Wing 6, TP-H 1011 Stress Relaxation Modulus, 0.5% Strain, 1000 Sec

-040°

$F = +.19385842E+02$ SIGNIFICANCE OF F = SIGNIFICANT $G_1 = +.13275288E+02$
 $R = -.28339125E+00$ SIGNIFICANCE OF R = SIGNIFICANT $S_a = +.43745582E-01$
 $t = +.44029357E+01$ SIGNIFICANCE OF t = SIGNIFICANT $S_t = +.12855816E+02$
 $N = 224$ DEGREES OF FREEDOM = 222
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = -040 DEG/RH



STAGE 1, WING G, TP-H 1011 STRESS RELAXATION MODULUS, 0.5% STRAIN, 1000 SEC
 4

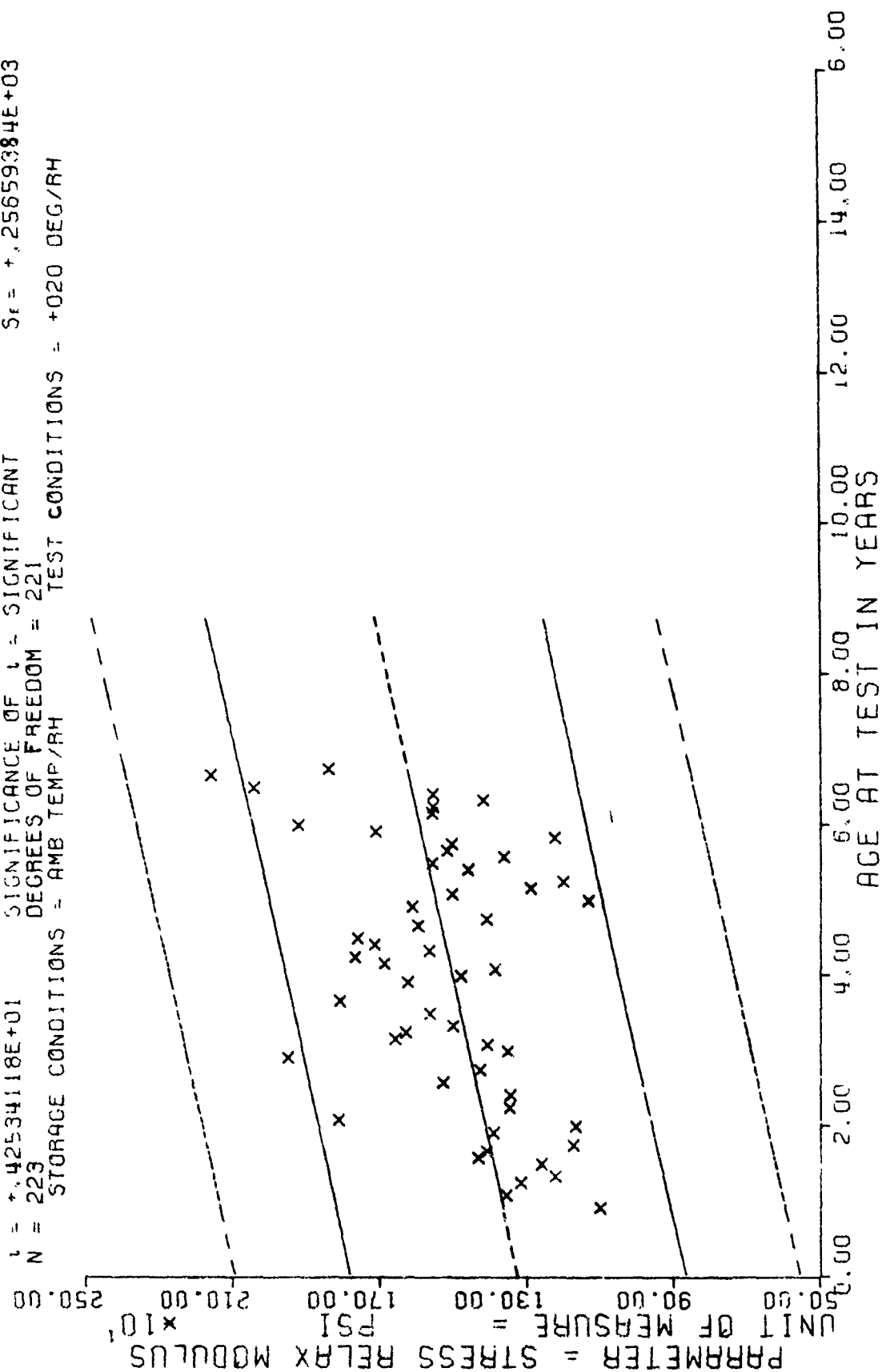
SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
11.0	3	38.0	3	62.0	3
13.0	3	39.0	6	63.0	9
15.0	3	40.0	2	65.0	9
16.0	3	42.0	6	66.0	6
18.0	6	44.0	3	67.0	7
19.0	3	47.0	6	68.0	3
20.0	6	48.0	6	69.0	6
21.0	3	49.0	6	70.0	6
23.0	3	50.0	3	71.0	7
24.0	3	51.0	3	72.0	6
25.0	3	52.0	3	74.0	3
27.0	3	53.0	3	75.0	5
29.0	3	54.0	6	76.0	5
31.0	3	56.0	3	77.0	2
33.0	3	57.0	3	78.0	3
35.0	6	59.0	3	80.0	3
36.0	3	60.0	3	81.0	3
37.0	3	61.0	6		
					223

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 10 Sec

+020°

$Y = (+.13247886E+04) + (+.37124471E+01) \times X$
 SIGNIFICANCE OF F - SIGNIFICANT
 $\sigma_r = +.26628813E+03$
 SIGNIFICANCE OF R - SIGNIFICANT
 $S_s = +.87281614E+00$
 SIGNIFICANCE OF t - SIGNIFICANT
 $S_t = +.25659384E+03$
 DEGREES OF FREEDOM = 221
 TEST CONDITIONS = +020 DEG/RH
 STORAGE CONDITIONS = AMB TEMP/RH



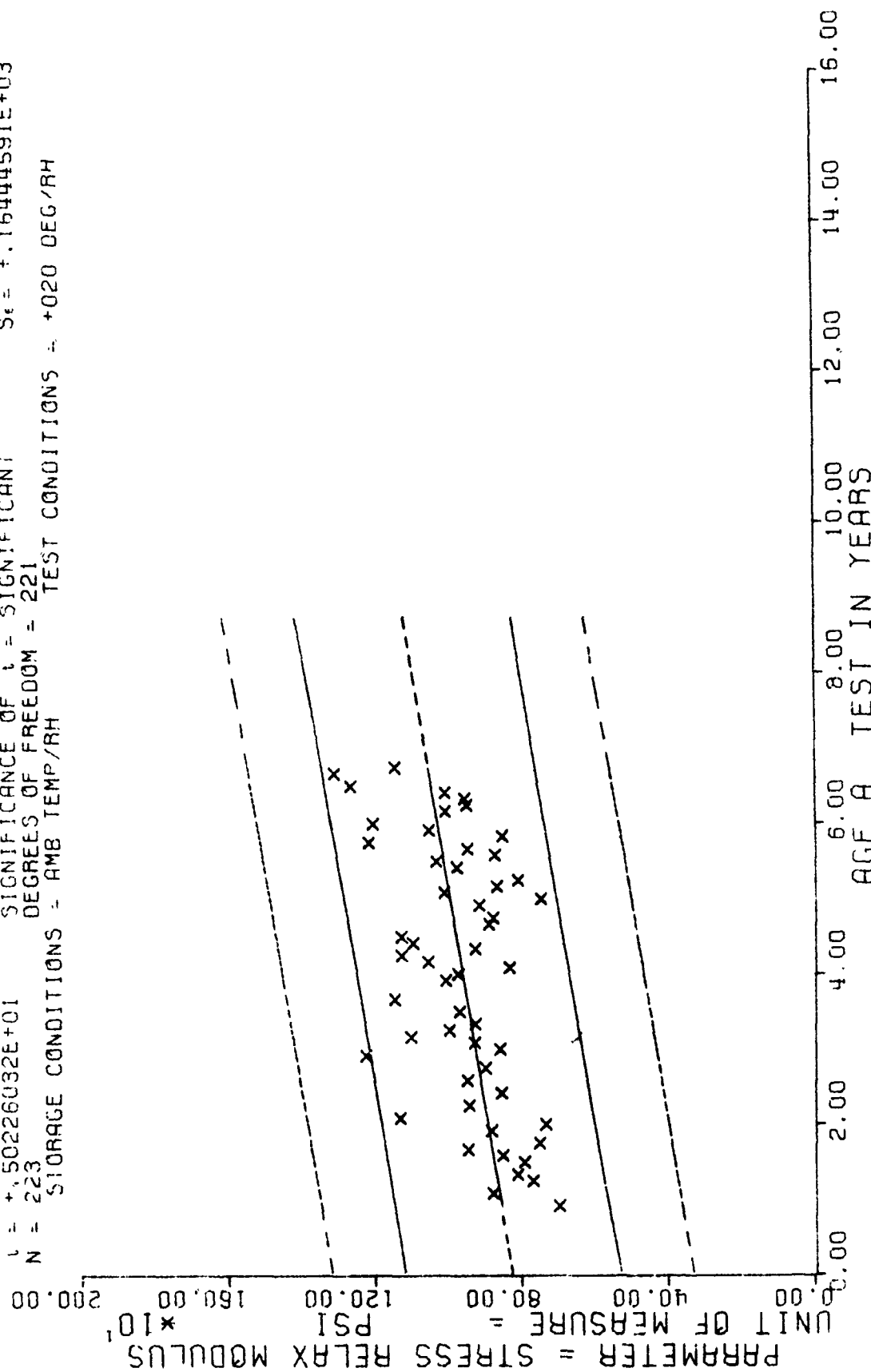
STAGE I WING C. TP-H 1011 STRESS RELAXATION MODULUS, 3 PERCENT STRAIN, 10 SEC

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
11.0	3	38.0	3	62.0	3
13.0	3	39.0	6	63.0	9
15.0	3	40.0	2	65.0	9
16.0	3	42.0	6	66.0	6
18.0	6	44.0	3	67.0	7
19.0	3	47.0	6	68.0	3
20.0	6	48.0	6	69.0	6
21.0	3	49.0	6	70.0	6
23.0	3	50.0	3	71.0	7
24.0	3	51.0	3	72.0	6
25.0	3	52.0	3	74.0	3
27.0	3	53.0	3	75.0	5
29.0	3	54.0	6	76.0	5
31.0	3	56.0	3	77.0	2
33.0	3	57.0	3	78.0	3
35.0	6	59.0	3	80.0	3
36.0	3	60.0	3	81.0	3
37.0	3	61.0	6		223

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 50 Sec
+020°

$Y = (+.82821531E+03) + (+.28094970E+01) * X$
 F = +.25226542E+02 SIGNIFICANCE OF F = SIGNIFICANT $\sigma_r = +.17318650E+03$
 R = +.32008213E+00 SIGNIFICANCE OF R = SIGNIFICANT $S_0 = +.55937067E+00$
 L = +.50226032E+01 SIGNIFICANCE OF L = SIGNIFICANT $S_t = +.16444591E+03$
 N = 223 DEGREES OF FREEDOM = 221
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = +020 DEG/RH



STAGE 1 WING 6, TP-H 1011 STRESS RELAXATION MODULUS, 3 PERCENT STRAIN, 50 SEC

Figure 40

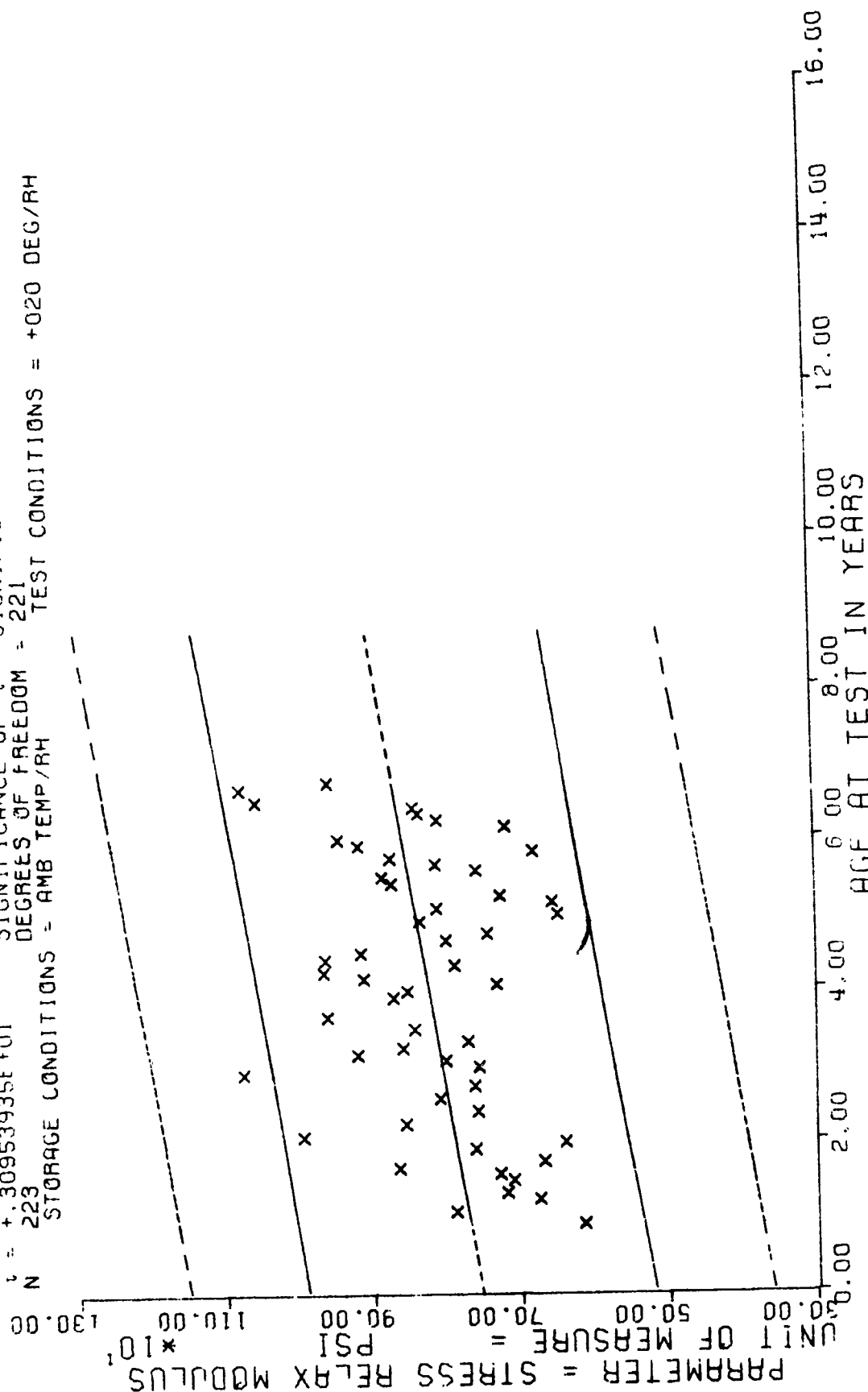
SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
11.0	3	38.0	3	62.0	3
13.0	3	39.0	6	63.0	9
15.0	3	40.0	2	65.0	9
16.0	3	42.0	6	66.0	6
18.0	6	44.0	3	67.0	7
19.0	3	47.0	6	68.0	3
20.0	6	48.0	6	69.0	6
21.0	3	49.0	6	70.0	6
23.0	3	50.0	3	71.0	7
24.0	3	51.0	3	72.0	6
25.0	3	52.0	3	74.0	3
27.0	3	53.0	3	75.0	5
29.0	3	54.0	6	76.0	5
31.0	3	56.0	3	77.0	2
33.0	3	57.0	3	78.0	3
35.0	6	59.0	3	80.0	3
36.0	3	60.0	3	81.0	3
37.0	3	61.0	6		<u>223</u>

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 100 Sec

+020°

$F = +.95814614E+01$ SIGNIFICANCE OF $F =$ SIGNIFICANT $G = +.13451275E+03$
 $R = +.20384669E+00$ SIGNIFICANCE OF $R =$ SIGNIFICANT $S_0 = +.44895658E+00$
 $t = +.30953935E+01$ SIGNIFICANCE OF $t =$ SIGNIFICANT $S_F = +.13198596E+03$
 $N = 223$ DEGREES OF FREEDOM = 221
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = +020 DEG/RH



STAGE 1 WING 6, TP-H 1011 STRESS RELAXATION MODULUS, 3 PERCENT STRAIN, 100 SEC

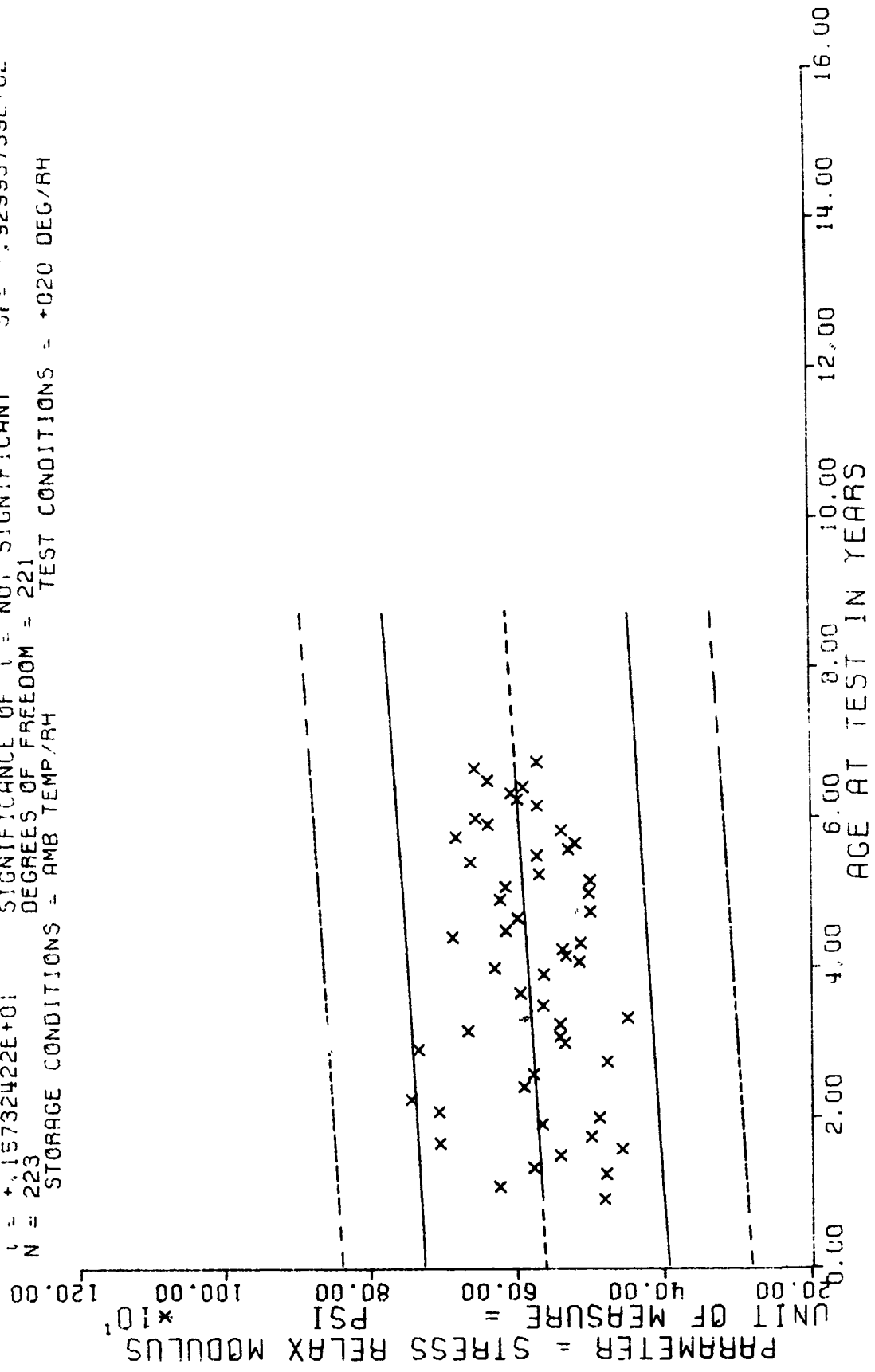
Figure 41

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
11.0	3	38.0	3	52.0	3
13.0	3	39.0	6	53.0	9
15.0	3	40.0	2	55.0	9
16.0	3	42.0	6	55.0	6
18.0	6	44.0	3	57.0	7
19.0	3	47.0	6	58.0	3
20.0	6	48.0	6	59.0	6
21.0	3	49.0	6	70.0	6
23.0	3	50.0	3	71.0	7
24.0	3	51.0	3	72.0	6
25.0	3	52.0	3	74.0	3
27.0	3	53.0	3	75.0	5
29.0	3	54.0	6	76.0	5
31.0	3	56.0	3	77.0	2
33.0	3	57.0	3	78.0	3
35.0	6	59.0	3	80.0	3
36.0	3	60.0	3	81.0	3
37.0	3	61.0	6		
					223

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Per Cent Strain, 1000 Sec
+020°

$Y = (+.56192023E+03) + (+.49766301E+00) \times X$
 F = +.24750911E+01 SIGNIFICANCE OF F = NOT SIGNIFICANT $\sigma_7 = +.93304205E+02$
 R = +.10524004E+00 SIGNIFICANCE OF R = NOT SIGNIFICANT $S_8 = +.31632954E+00$
 U = +.15732422E+01 SIGNIFICANCE OF U = NOT SIGNIFICANT $S_9 = +.92995759E+02$
 N = 223 DEGREES OF FREEDOM = 221
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = +020 DEG/RH



STAGE 1 WING G, TP-H 1011 STRESS RELAXATION MODULUS, 3 PERCENT STRAIN, 1000 SEC

Figure 42

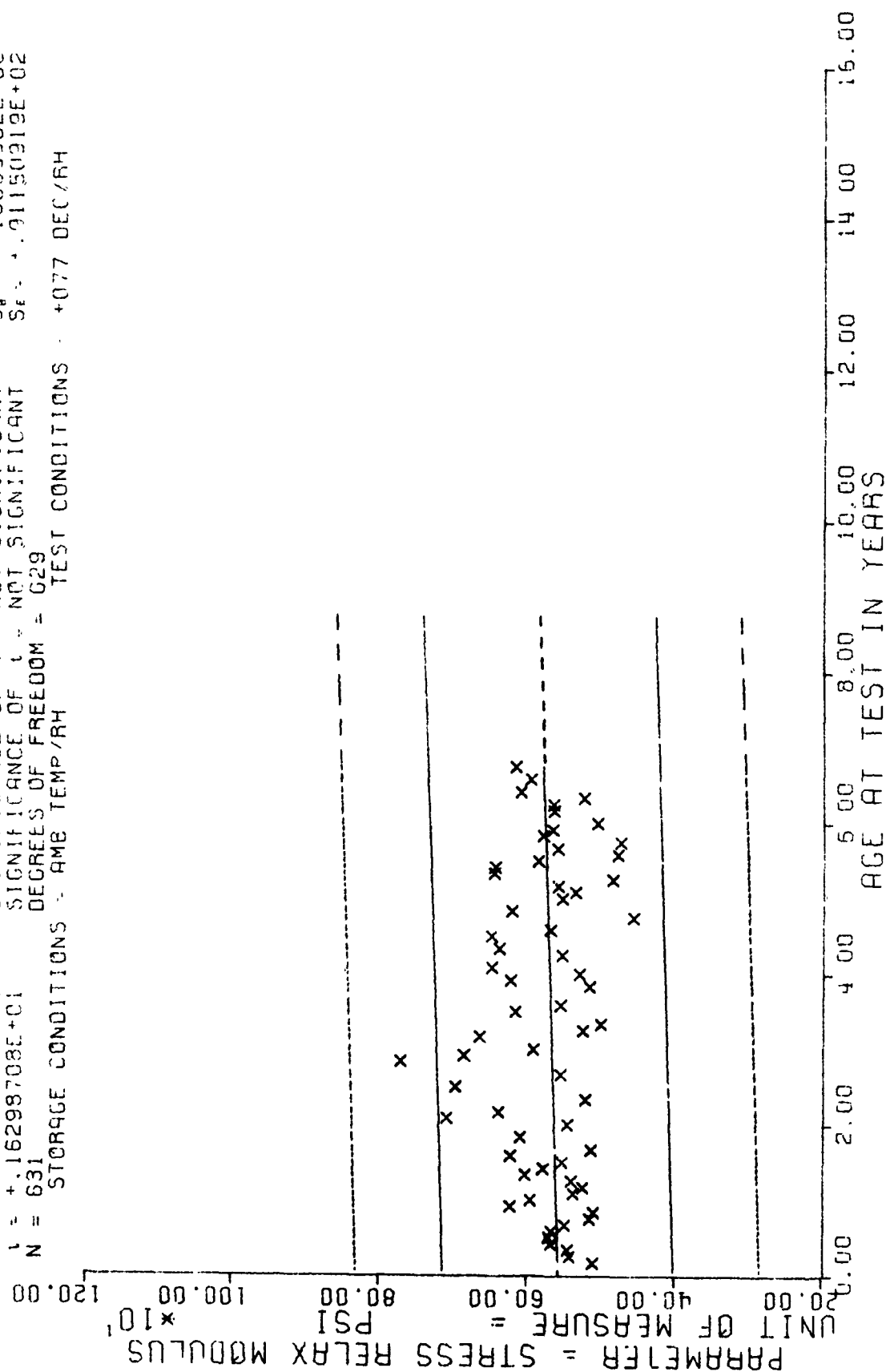
SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
2.0	3	20.0	4	48.0	9	70.0	12
3.0	6	22.0	3	49.0	3	71.0	3
4.0	18	24.0	3	51.0	3	72.0	6
5.0	22	25.0	3	52.0	6	74.0	3
6.0	21	26.0	3	54.0	3	75.0	6
7.0	35	28.0	3	55.0	3	76.0	3
8.0	27	30.0	3	57.0	3	77.0	6
9.0	36	32.0	3	58.0	3	79.0	3
10.0	35	34.0	3	60.0	12	81.0	3
11.0	37	35.0	3	61.0	3		631
12.0	44	36.0	6	62.0	3		
13.0	27	38.0	3	63.0	3		
14.0	34	39.0	6	64.0	9		
15.0	39	40.0	3	65.0	3		
16.0	18	42.0	6	66.0	6		
17.0	16	43.0	3	67.0	3		
18.0	1	46.0	3	68.0	6		
19.0	10	47.0	9	69.0	6		

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 10 Sec.

+077°

$Y = (+.55914201E+03) + (+.26132541E+00) * X$
 $F = +.26564791E+01$ SIGNIFICANCE OF F = NOT SIGNIFICANT $\sigma^2 = +.91270674E+02$
 $R = +.64850403E-01$ SIGNIFICANCE OF R = NOT SIGNIFICANT $S_a = +.16033502E+00$
 $t = +.16298708E+01$ SIGNIFICANCE OF t = NOT SIGNIFICANT $S_E = +.91150319E+02$
 $N = 631$ DEGREES OF FREEDOM = 629
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = +077 DEC/RH



STAGE 1 WING G, F-H 1011 STRESS RELAXATION MODULUS, 3 PERCENT STRAIN, 10 SEC

Figure 43

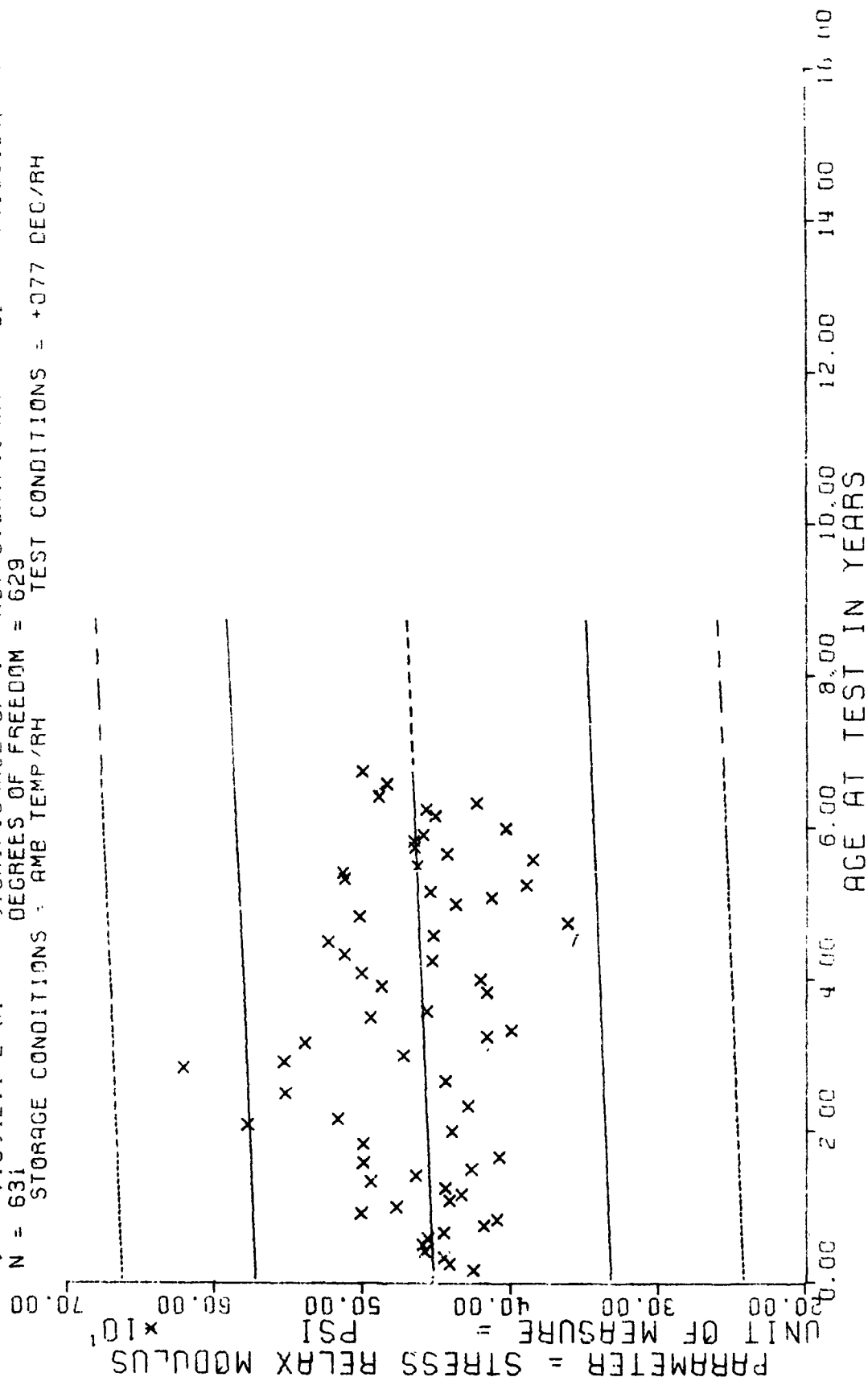
SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
2.0	3	20.0	4	70.0	12
3.0	6	22.0	3	71.0	3
4.0	18	24.0	3	72.0	6
5.0	22	25.0	3	74.0	3
6.0	21	26.0	3	75.0	6
7.0	35	28.0	3	76.0	3
8.0	27	30.0	3	77.0	6
9.0	36	32.0	3	79.0	3
10.0	35	34.0	3	81.0	3
11.0	37	35.0	3		-
12.0	44	36.0	6		331
13.0	27	38.0	3		
14.0	34	39.0	6		
15.0	39	40.0	3		
16.0	18	42.0	6		
17.0	16	43.0	3		
18.0	1	46.0	3		
19.0	10	47.0	9		

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 50 Sec

+0770

$Y = (+.45297163E+03) + (+.17204535E+00) * X$
 F = +.19438248E+01 SIGNIFICANCE OF F = NOT SIGNIFICANT $\sigma_y = +.70205651E+01$
 R = +.55505141E-01 SIGNIFICANCE OF R = NOT SIGNIFICANT $S_a = +.12339973E+01$
 t = +.13942111E+01 SIGNIFICANCE OF t = NOT SIGNIFICANT $S_{\sigma} = +.70153121E+01$
 N = 631 DEGREES OF FREEDOM = 629
 STORAGE CONDITIONS : AMB TEMP/RH TEST CONDITIONS = +077 DEC/RH



STAGE 1 WING 6, 7P-H 1011 STRESS RELAXATION MODULUS, 3 PERCENT STRAIN, 50 SFI

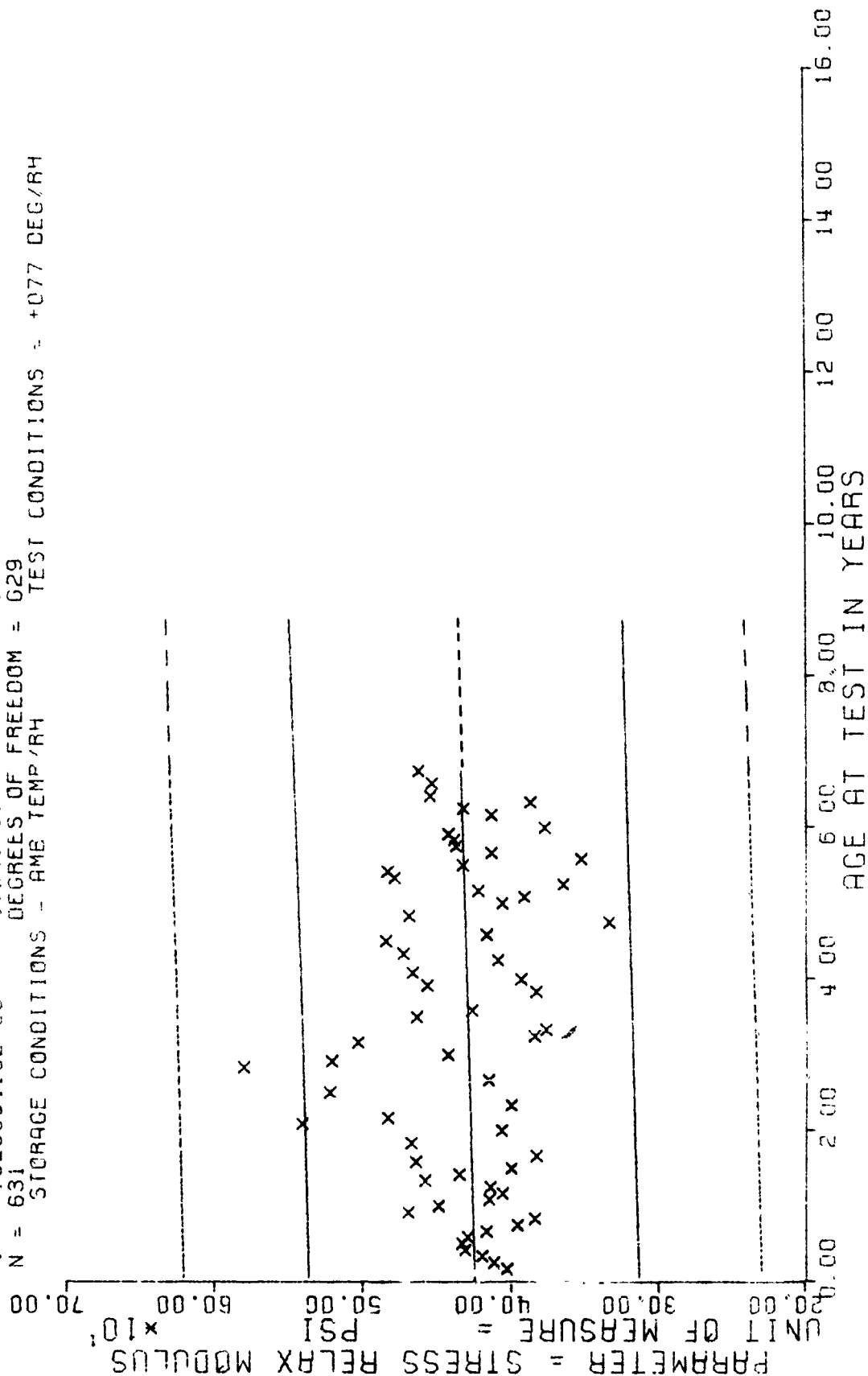
Figure 44

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
2.0	3	20.0	4	48.0	9	70.0	12
3.0	6	22.0	3	49.0	3	71.0	3
4.0	18	24.0	3	51.0	3	72.0	6
5.0	22	25.0	3	52.0	6	74.0	3
6.0	21	26.0	3	54.0	3	75.0	6
7.0	35	28.0	3	55.0	3	76.0	3
8.0	27	30.0	3	57.0	3	77.0	6
9.0	36	32.0	3	58.0	3	79.0	3
10.0	35	34.0	3	60.0	12	81.0	3
11.0	37	35.0	3	61.0	3		
12.0	44	36.0	6	62.0	3		
13.0	27	38.0	3	63.0	3		
14.0	34	39.0	6	64.0	9		
15.0	39	40.0	3	65.0	3		
16.0	18	42.0	6	66.0	6		
17.0	16	43.0	3	67.0	3		
18.0	1	46.0	3	68.0	6		
19.0	10	47.0	9	69.0	6		
							631

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 100 Sec
+077°

$F = +.86314152E+00$ SIGNIFICANCE OF F = NOT SIGNIFICANT $G = +.65189361E+02$
 $R = +.37018422E-01$ SIGNIFICANCE OF R = NOT SIGNIFICANT $S_0 = +.11468092E+00$
 $t = +.92905410E+00$ SIGNIFICANCE OF t = NOT SIGNIFICANT $S_1 = +.65195443E+02$
 $N = 631$ DEGREES OF FREEDOM = 629
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = +077 DEG/RH



STAGE I WING 5 12-H 1011 STRESS RELAXATION MODULUS, 3 PERCENT STRAIN, 100 SEC

Figure 45

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
2.0	3	20.0	4	48.0	9	70.0	12
3.0	6	22.0	3	49.0	3	71.0	3
4.0	18	24.0	3	51.0	3	72.0	6
5.0	19	25.0	3	52.0	6	74.0	3
6.0	21	26.0	3	54.0	3	75.0	6
7.0	35	28.0	3	55.0	3	76.0	3
8.0	27	30.0	3	57.0	3	77.0	6
9.0	36	32.0	3	58.0	3	79.0	3
10.0	35	34.0	3	60.0	12	81.0	3
11.0	37	35.0	3	61.0	3		
12.0	44	36.0	6	62.0	3		
13.0	27	38.0	3	63.0	3		
14.0	34	39.0	6	64.0	9		
15.0	39	40.0	3	65.0	3		
16.0	18	42.0	6	66.0	6		
17.0	16	43.0	3	67.0	3		
18.0	1	46.0	3	68.0	6		
19.0	10	47.0	9	69.0	6		
							628

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 1000 Sec
+077°

$Y = (+.34803461E+03) + (-.76564662E-02) * X$
 F = +.63260746E-02 SIGNIFICANCE OF F = NOT SIGNIFICANT $\sigma_1 = +.54583877E+02$
 R = -.31789067E-02 SIGNIFICANCE OF R = NOT SIGNIFICANT $S_0 = +.96263404E-01$
 t = +.79536624E-01 SIGNIFICANCE OF t = NOT SIGNIFICANT $S_F = +.54627181E+02$
 N = 628 DEGREES OF FREEDOM = 626
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = +077 DEC/RH

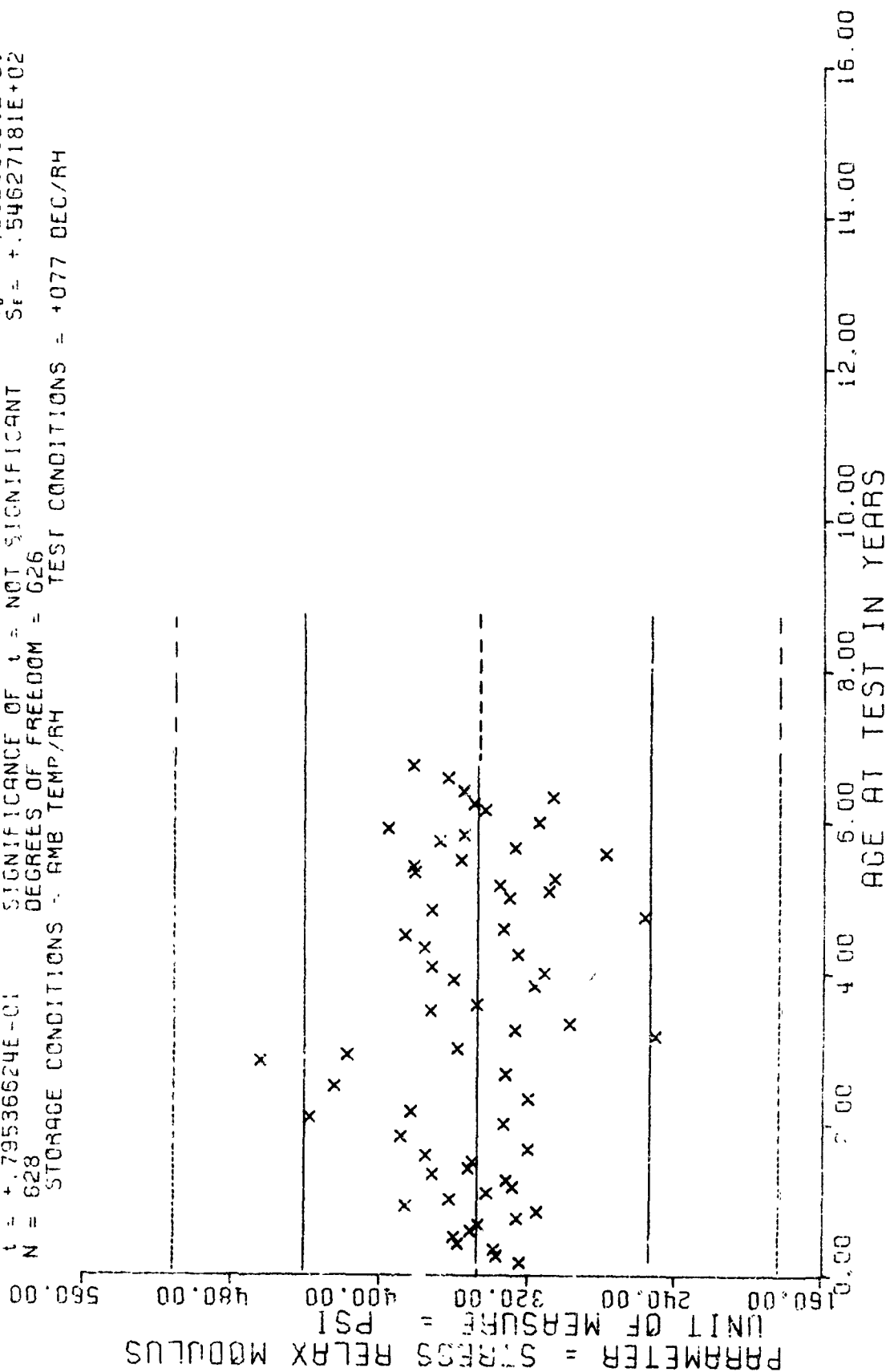


Figure 46

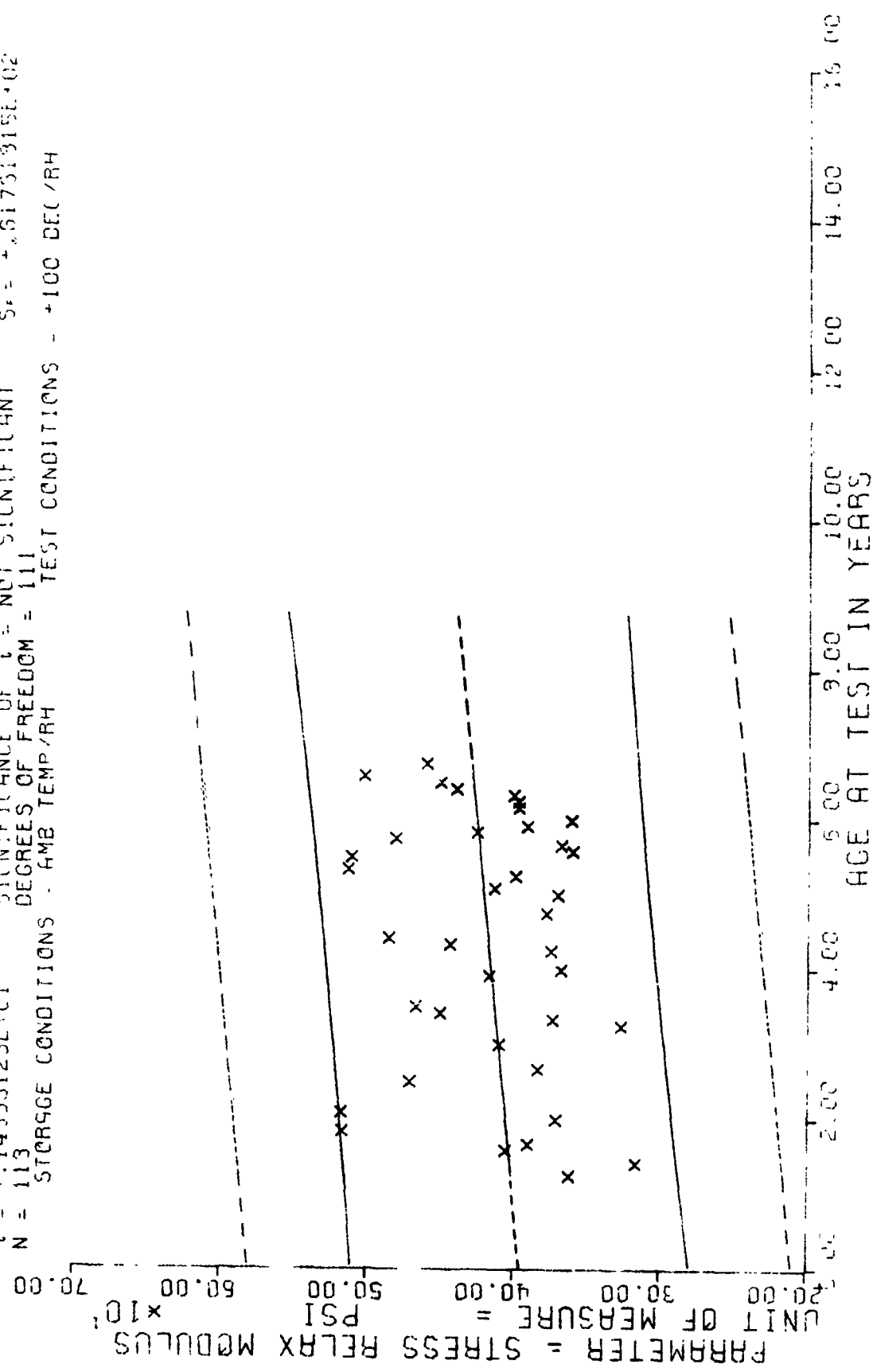
SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
15.0	3	39.0	3	60.0	3	72.0	3
17.0	3	40.0	3	61.0	3	74.0	3
19.0	3	41.0	3	63.0	3	75.0	3
20.0	3	42.0	3	64.0	3	76.0	2
22.0	3	47.0	3	66.0	3	77.0	3
24.0	3	48.0	3	67.0	3	78.0	3
25.0	3	51.0	3	68.0	3	79.0	3
30.0	3	52.0	3	69.0	3	81.0	3
32.0	3	53.0	3	70.0	3		
36.0	3	57.0	3	71.0	3		
							113

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 10 Sec

+130°

$F = +.21471407E+01$
 $R = +.13775534E+00$
 $t = +.14553125E+01$
 $N = 113$
 STORAGE CONDITIONS - 4MB TEMP/RH
 DEGREES OF FREEDOM = 111
 TEST CONDITIONS - +100 DEC/RH
 $Y = (.33590535E+03) + (.41359750E+00) X$
 SIGNIFICANCE OF F = NOT SIGNIFICANT
 SIGNIFICANCE OF R = NOT SIGNIFICANT
 SIGNIFICANCE OF t = NOT SIGNIFICANT
 $G = +.62097403E+02$
 $S_1 = +.23557114E+00$
 $S_2 = +.51731315E+02$



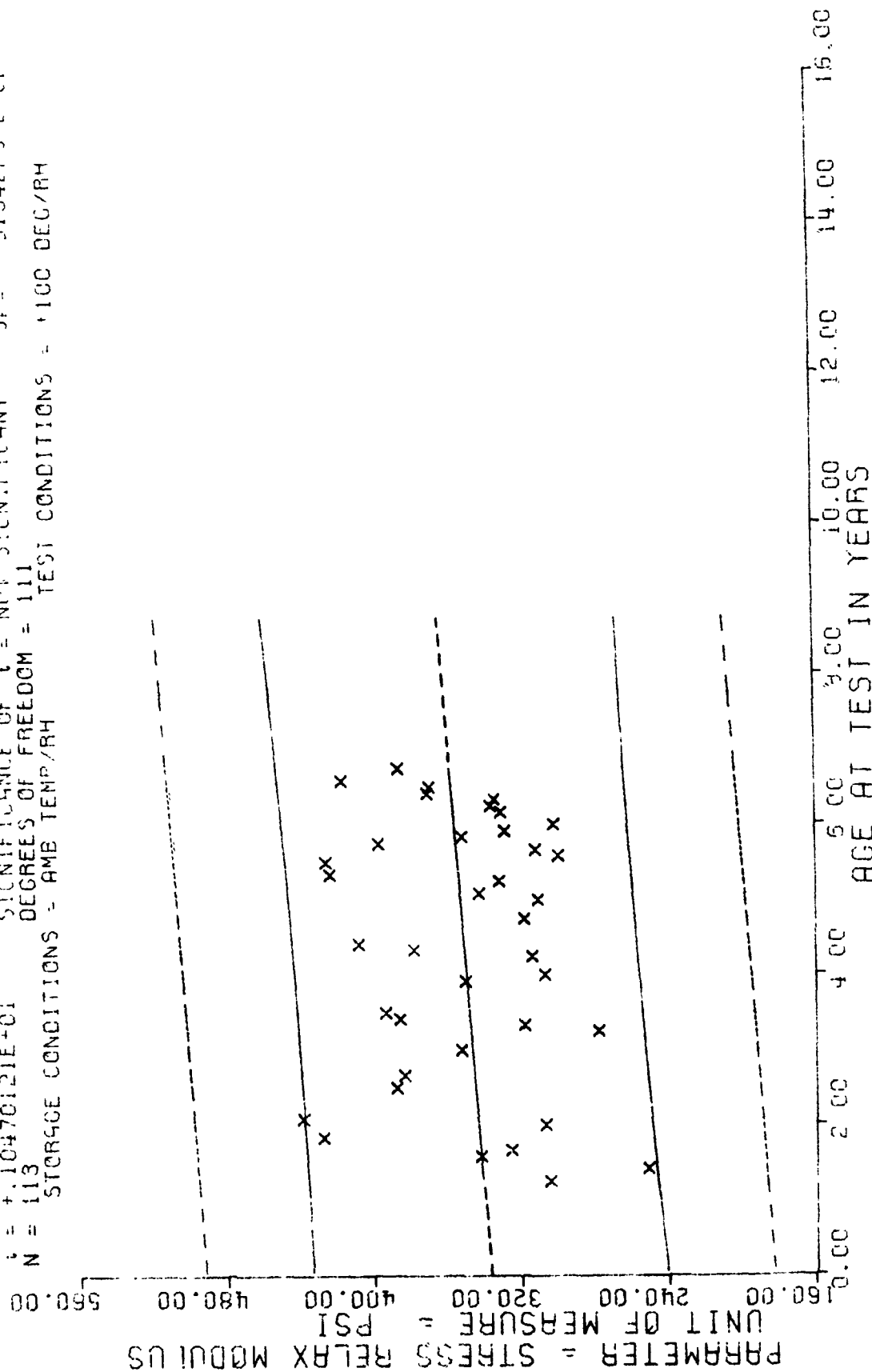
SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
15.0	3	39.0	3	60.0	3	72.0	3
17.0	3	40.0	3	61.0	3	74.0	3
19.0	3	41.0	3	63.0	3	75.0	3
20.0	3	42.0	3	64.0	3	76.0	2
22.0	3	47.0	3	66.0	3	77.0	3
24.0	3	48.0	3	67.0	3	78.0	3
25.0	3	51.0	3	68.0	3	79.0	3
30.0	3	52.0	3	69.0	3	81.0	3
32.0	3	53.0	3	70.0	3		
36.0	3	57.0	3	71.0	3		
							113

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 50 Sec

+100°

$F = +.10962345E+01$
 $R = +.99390977E-01$
 $t = +.10470121E+01$
 $N = 113$
 $Y = (.33739335E+03) + (.24352531E+00) \times X$
 SIGNIFICANCE OF F = NOT SIGNIFICANT
 SIGNIFICANCE OF R = NOT SIGNIFICANT
 SIGNIFICANCE OF t = NOT SIGNIFICANT
 DEGREES OF FREEDOM = 111
 STORAGE CONDITIONS = AMB TEMP/RH
 TEST CONDITIONS = +100 DEG/RH
 $S_7 = +.51564374E+02$
 $S_8 = +.23832464E+00$
 $S_9 = +.51542239E+02$

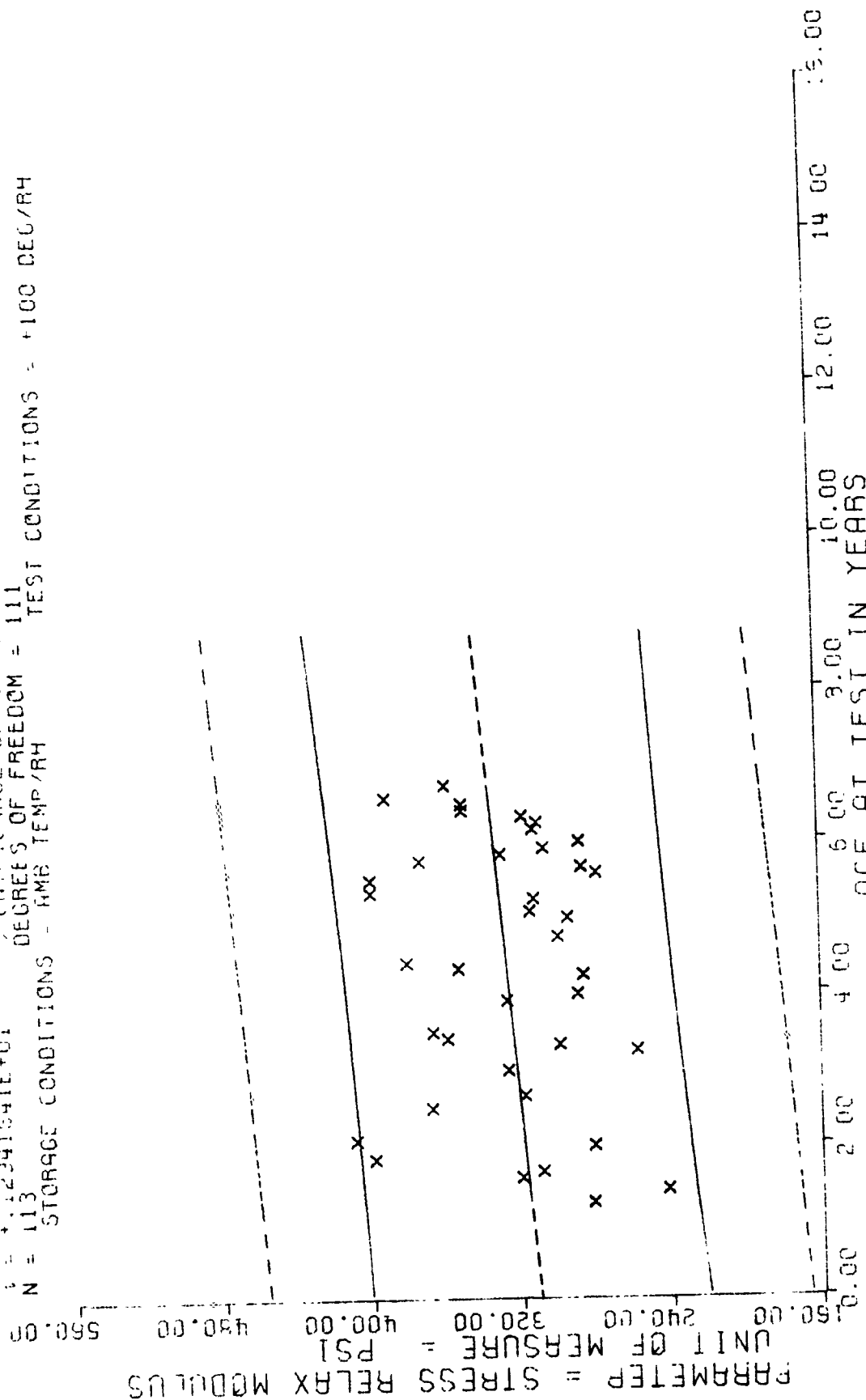


SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
15.0	3	39.0	3	60.0	3	72.0	3
17.0	3	40.0	3	61.0	3	74.0	3
19.0	3	41.0	3	63.0	3	75.0	3
20.0	3	42.0	3	64.0	3	76.0	2
22.0	3	47.0	3	66.0	3	77.0	3
24.0	3	48.0	3	67.0	3	78.0	3
25.0	3	51.0	3	68.0	3	79.0	3
30.0	3	52.0	3	69.0	3	81.0	3
32.0	3	53.0	3	70.0	3		
36.0	3	57.0	3	71.0	3		
							113

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 100 Sec
+100°

$F = +.16748609E+01$
 $R = +.12102025E+00$
 $t = +.12341641E+01$
 $N = 113$
 $F - (+.31200161E+03) + (+.29327073E+00) \times X$
 SIGNIFICANCE OF F = NOT SIGNIFICANT
 SIGNIFICANCE OF R = NOT SIGNIFICANT
 SIGNIFICANCE OF t = NOT SIGNIFICANT
 DEGREES OF FREEDOM = 111
 STORAGE CONDITIONS = HMB TEMP/RH
 TEST CONDITIONS = +100 DEG/RH



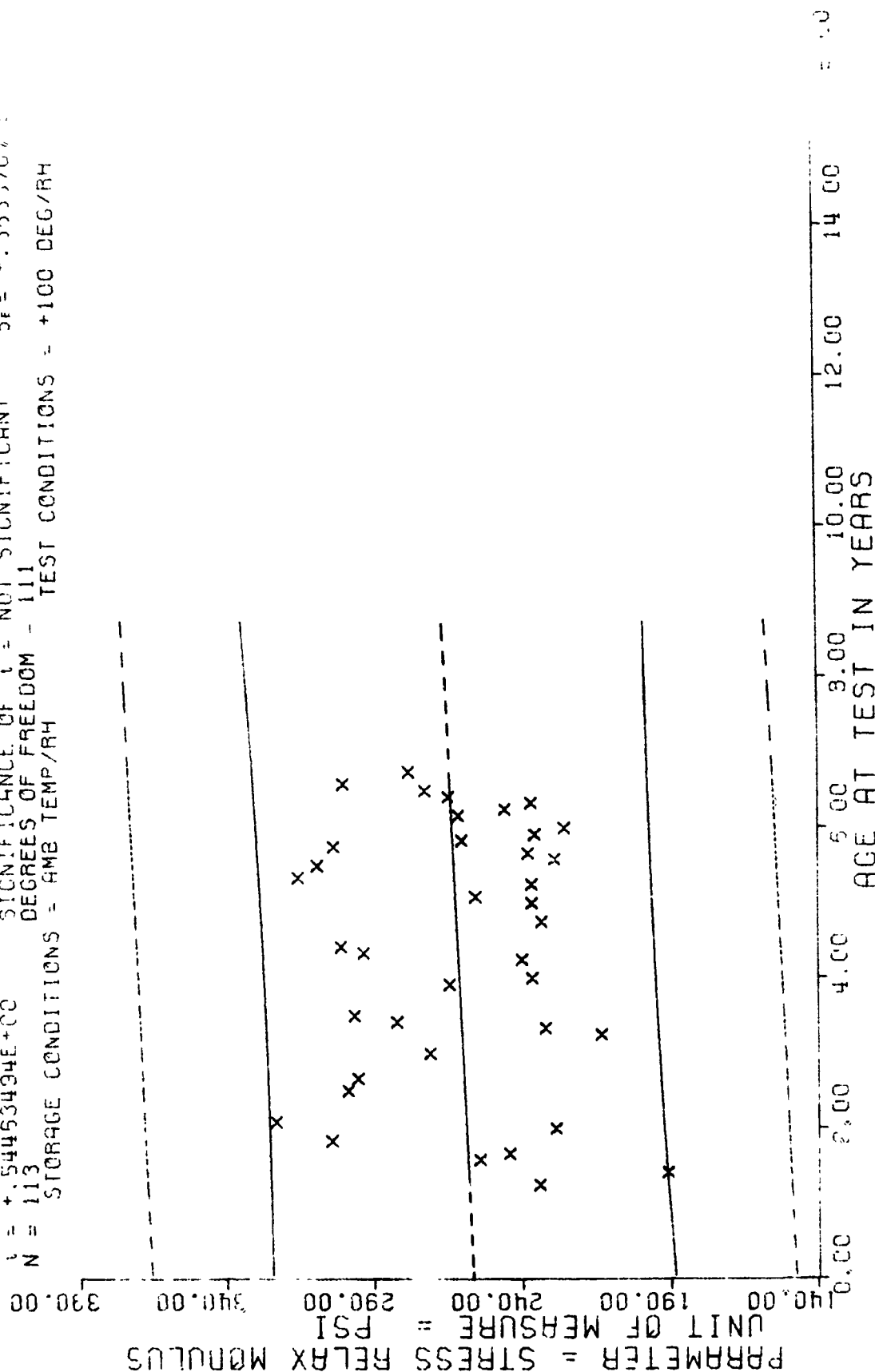
STAGE 1 WING 10-H 1011 STRESS RELAXATION MODULUS, 3 PERCENT STRAIN, 100 SEC

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
15.0	3	39.0	3	60.0	3	72.0	3
17.0	3	40.0	3	61.0	3	74.0	3
19.0	3	41.0	3	63.0	3	75.0	3
20.0	3	42.0	3	64.0	3	76.0	2
22.0	3	47.0	3	66.0	3	77.0	3
24.0	3	48.0	3	67.0	3	78.0	3
25.0	3	51.0	3	68.0	3	79.0	3
30.0	3	52.0	3	69.0	3	81.0	3
32.0	3	53.0	3	70.0	3		
36.0	3	57.0	3	71.0	3		
							113

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 1000 Sec
+100°

$Y = (+.25710725E+03) + (+.31503447E-01) \times X$
 SIGNIFICANCE OF F = NOT SIGNIFICANT $S_y = +.36222735E-01$
 SIGNIFICANCE OF R = NOT SIGNIFICANT $S_x = +.16801733E-01$
 SIGNIFICANCE OF t = NOT SIGNIFICANT $S_F = +.3533707E-01$
 DEGREES OF FREEDOM = 111
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = +100 DEG/RH
 N = 113



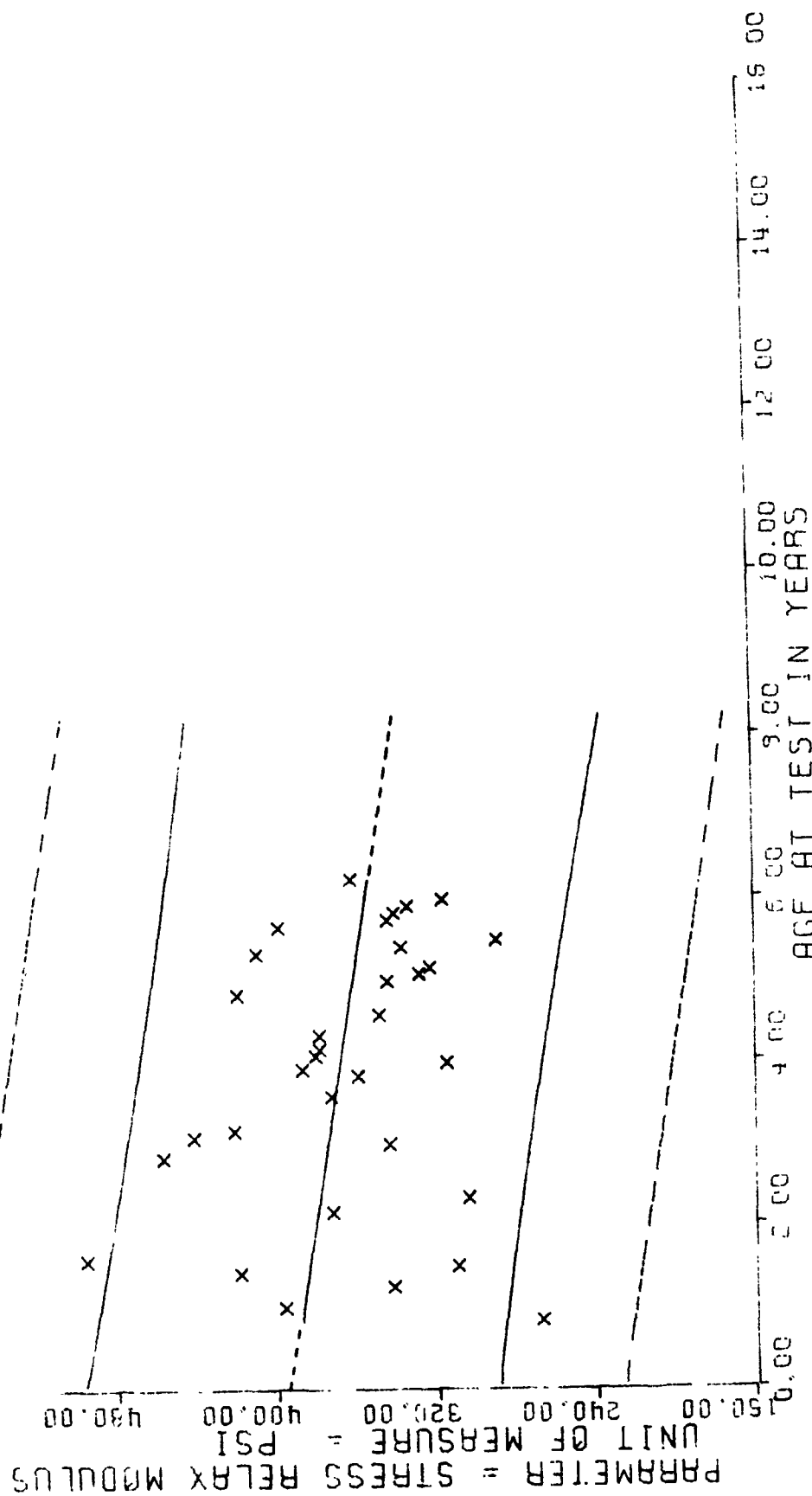
STAGE 1 WING 5, TP-H 1011 STRESS RELAXATION MODULUS, 3 PERCENT STRAIN, 1000 5°

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
10.0	3	36.0	3	52.0	3	68.0	3
12.0	3	37.0	3	55.0	3	69.0	3
15.0	3	38.0	3	58.0	3	70.0	6
17.0	3	43.0	3	60.0	6	71.0	3
18.0	3	46.0	3	61.0	3	72.0	3
19.0	3	47.0	6	62.0	3	75.0	3
26.0	3	48.0	3	64.0	6		
28.0	3	49.0	3	65.0	3		
34.0	6	50.0	3	66.0	3		
							114

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 10 Sec
+120°

$F = +.41109063E+01$ SIGNIFICANCE OF F = $(-.554931E+00) \times X$ $G = +.56320047E+02$
 $R = -.19815215E+00$ SIGNIFICANCE OF R = SIGNIFICANT $S_1 = +.27343023E+02$
 $T = +.20275370E+01$ SIGNIFICANCE OF T = SIGNIFICANT $S_2 = +.55620502E+02$
 $N = 114$ DEGREES OF FREEDOM = 112 TEST CONDITIONS = +120 DEG/RH
 STORAGE CONDITIONS AMB TEMP/RH



STAGE 1 WING 5 TP-H 1011 STRESS RELAXATION MODULUS. 3 PERCENT STRAIN. 10 SEC

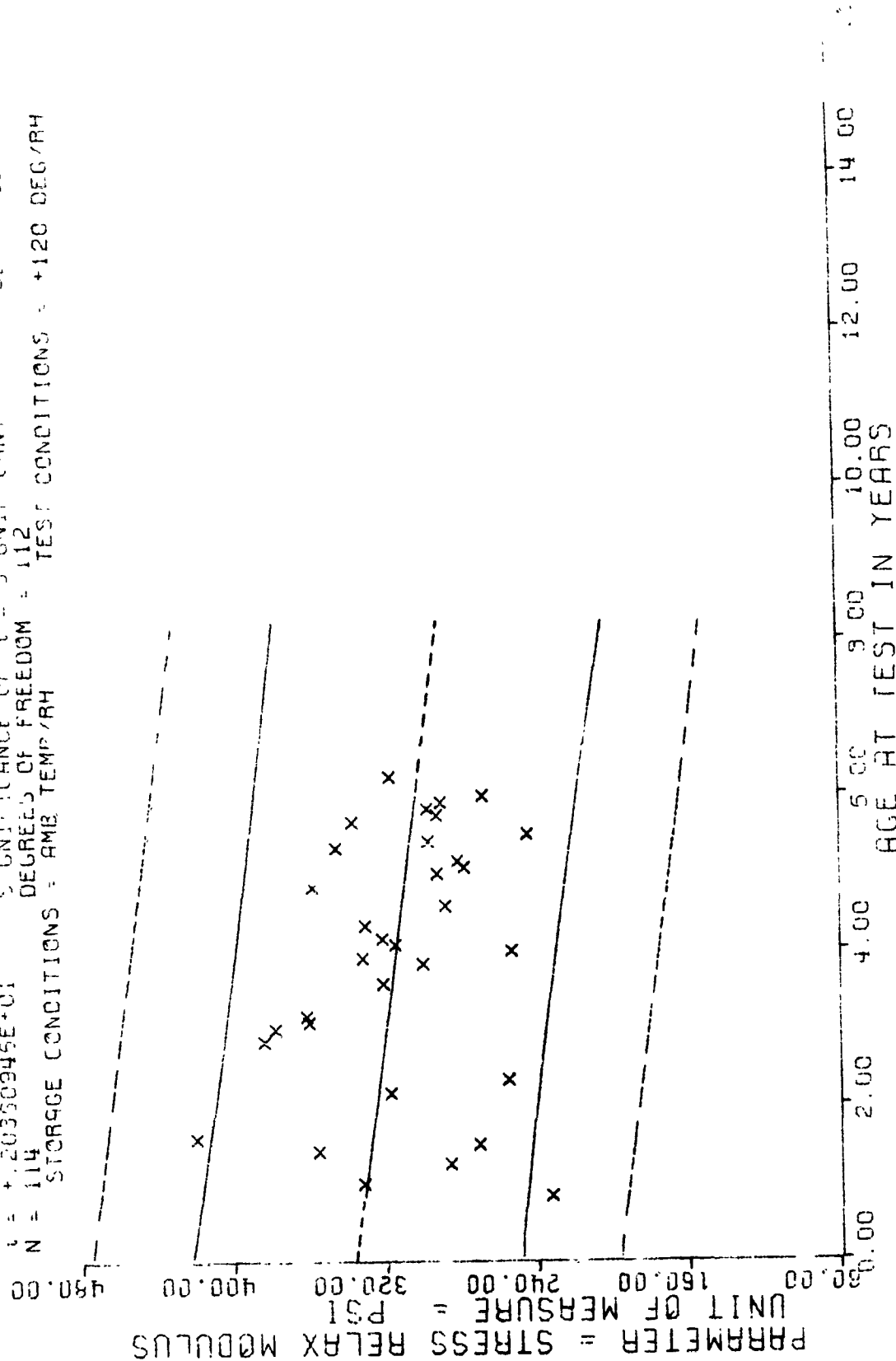
Figure 51

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
10.0	3	36.0	3	52.0	3	68.0	3
12.0	3	37.0	3	55.0	3	69.0	3
15.0	3	38.0	3	58.0	3	70.0	6
17.0	3	43.0	3	60.0	6	71.0	3
18.0	3	46.0	3	61.0	3	72.0	3
19.0	3	47.0	6	62.0	3	75.0	3
26.0	3	48.0	3	64.0	6		114
28.0	3	49.0	3	65.0	3		
34.0	6	50.0	3	66.0	3		

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 50 Sec
+120°

$F = +.41456313E+01$ SIGNIFICANCE OF F = SIGNIFICANT
 $R = -.13392304E+00$ SIGNIFICANCE OF R = SIGNIFICANT
 $t = +.20350945E+01$ SIGNIFICANCE OF t = SIGNIFICANT
 $N = 114$ DEGREES OF FREEDOM = 112
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = +120 DEG/RH



STAGE 1 WING 5 TP-H 1011 STRESS RELAXATION MODULUS 3 PERCENT STRAIN, 50 °F

Figure 52

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
10.0	3	36.0	3	52.0	3	68.0	3
12.0	3	37.0	3	55.0	3	69.0	3
15.0	3	38.0	3	58.0	3	70.0	6
17.0	3	43.0	3	60.0	6	71.0	3
18.0	3	46.0	3	61.0	3	72.0	3
19.0	3	47.0	6	62.0	3	75.0	3
26.0	3	48.0	3	64.0	6		
28.0	3	49.0	3	65.0	3		
34.0	6	50.0	3	66.0	3		
							114

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 100 Sec

+120°

$Y = (-1.30751856E+03) + (-.32145046E+00) * X$
 F = +.25099353E+01 SIGNIFICANCE OF F = NOT SIGNIFICANT $G = +.41548333E+02$
 R = -.14305133E+00 SIGNIFICANCE OF R = NOT SIGNIFICANT $S = +.20290450E+00$
 t = +.15842234E+01 SIGNIFICANCE OF t = NOT SIGNIFICANT $St = +.41273486E+02$
 N = 114 DEGREES OF FREEDOM = 112
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = +120 DEG/RH

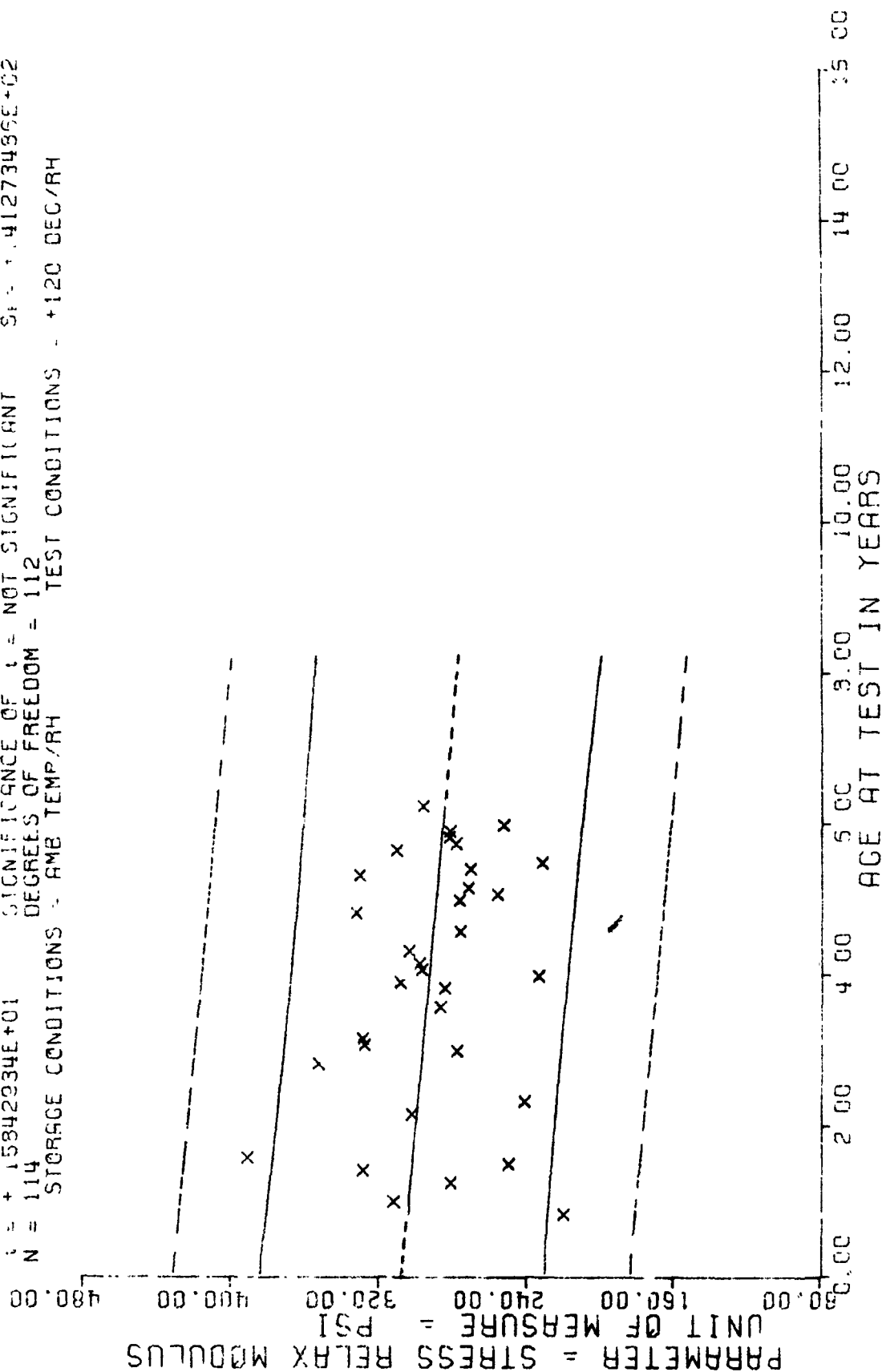


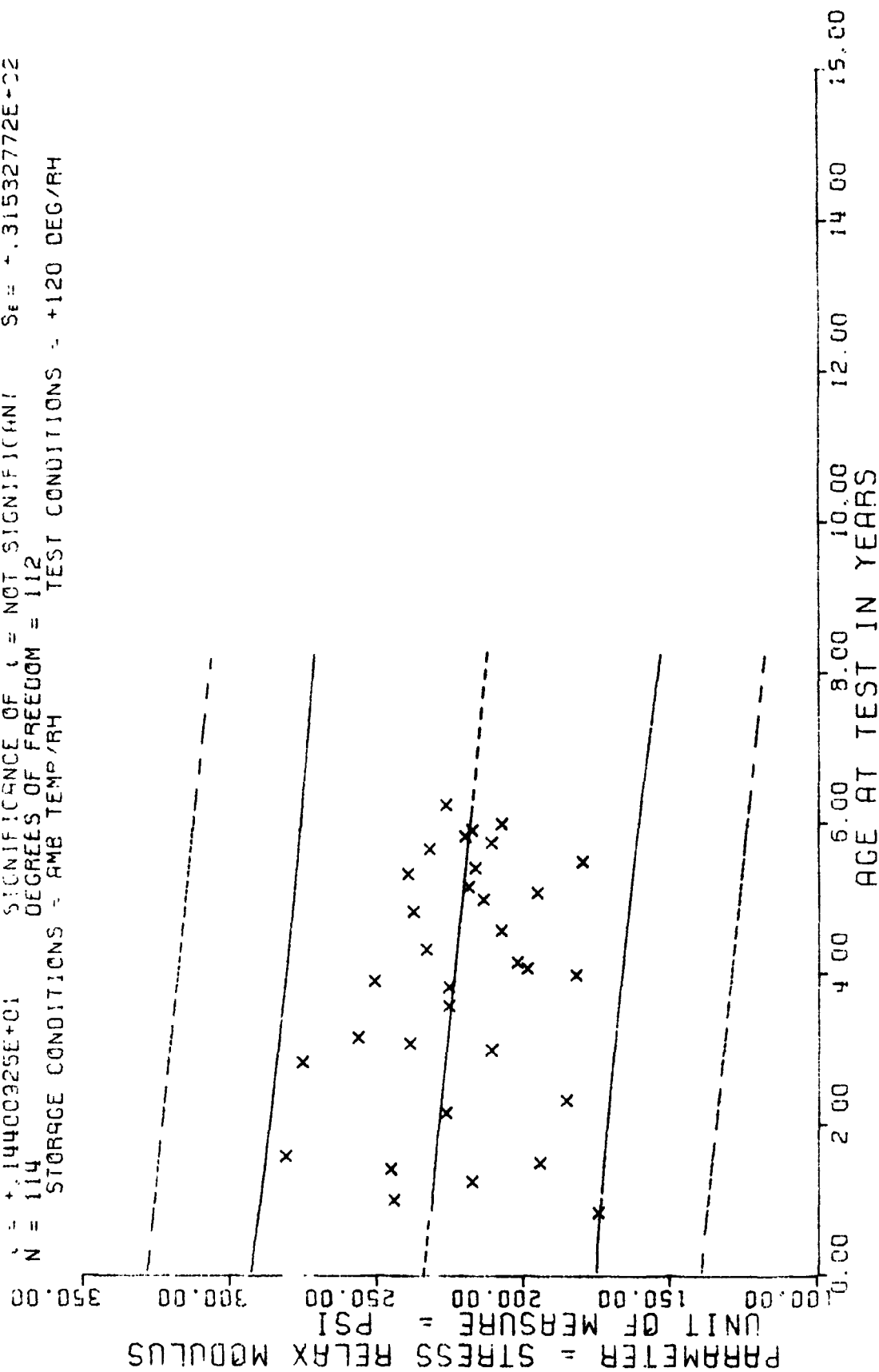
Figure 53

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
10.0	3	36.0	3	52.0	3	68.0	3
12.0	3	37.0	3	55.0	3	69.0	3
15.0	3	38.0	3	58.0	3	70.0	6
17.0	3	43.0	3	60.0	6	71.0	3
18.0	3	46.0	3	61.0	3	72.0	3
19.0	3	47.0	6	62.0	3	75.0	3
26.0	3	48.0	3	64.0	6		114
28.0	3	49.0	3	65.0	3		
34.0	6	50.0	3	66.0	3		

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 1000 Sec
+120°

$Y = (+.23426504E+03) + (-.22324067E+00) \times X$
 F = +.20738664E+01 SIGNIFICANCE OF F = NOT SIGNIFICANT $GT = +.31682249E+02$
 R = -.13483334E+00 SIGNIFICANCE OF R = NOT SIGNIFICANT $ST = +.15501828E+02$
 S = +.14400925E+01 SIGNIFICANCE OF S = NOT SIGNIFICANT $SE = +.31532772E+02$
 N = 114 DEGREES OF FREEDOM = 112
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = +120 DEG/RH

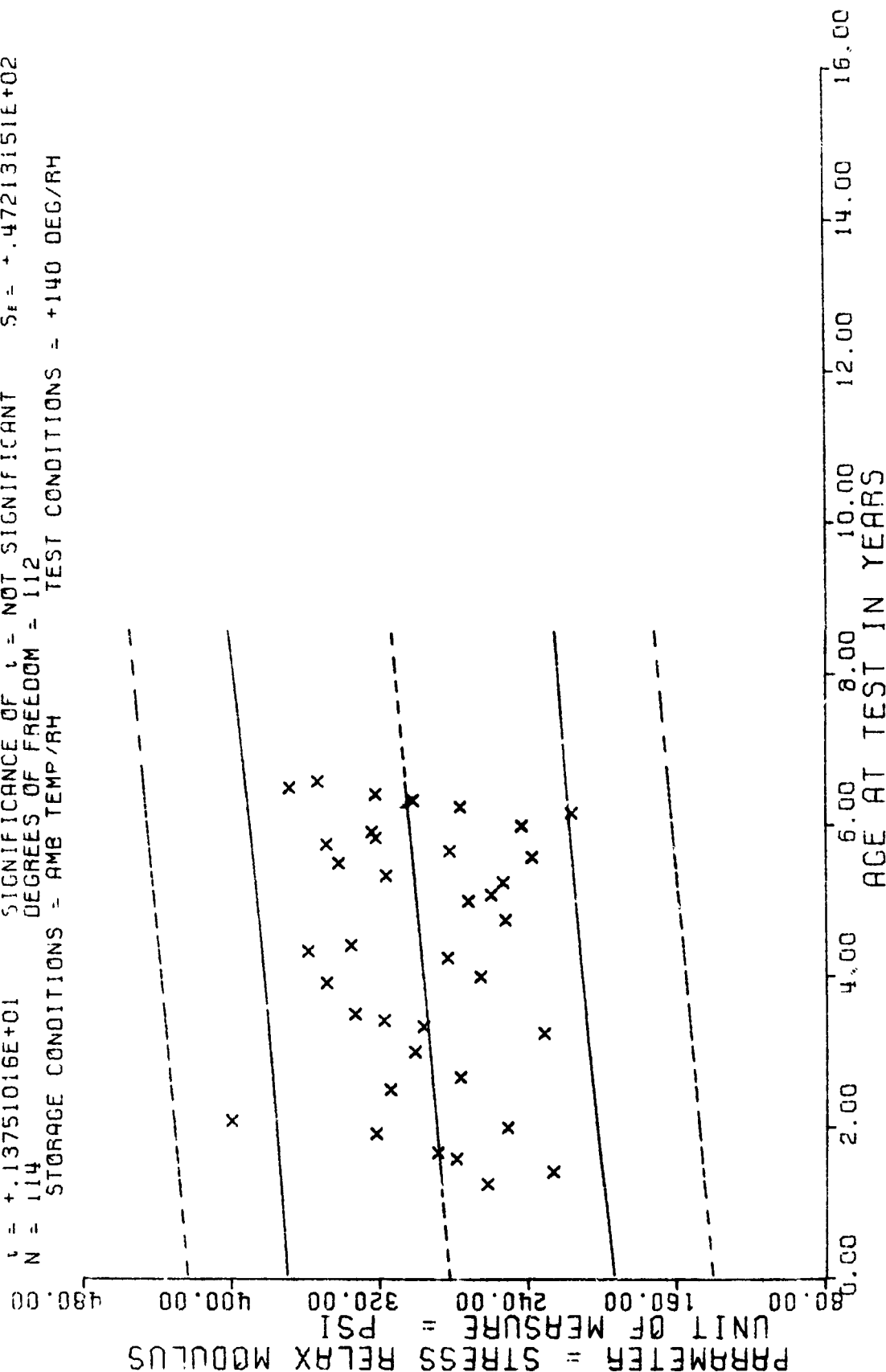


SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
15.0	3	39.0	3	60.0	3	72.0	3
17.0	3	40.0	3	61.0	3	74.0	3
19.0	3	41.0	3	63.0	3	75.0	3
20.0	3	42.0	3	64.0	3	76.0	3
23.0	3	47.0	3	66.0	3	77.0	3
24.0	3	48.0	3	67.0	3	78.0	3
25.0	3	51.0	3	68.0	3	79.0	3
30.0	3	52.0	3	69.0	3		
32.0	3	53.0	3	70.0	6		
36.0	3	57.0	3	71.0	3		
							114

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 10 Sec
+140°

$Y = (+.28258602E+03) + (+.30431916E+00) \times X$
 SIGNIFICANCE OF F = NOT SIGNIFICANT $G = +.47398902E+02$
 SIGNIFICANCE OF R = NOT SIGNIFICANT $S_a = +.22130666E+00$
 SIGNIFICANCE OF t = NOT SIGNIFICANT $S_e = +.47213151E+02$
 N = 114 DEGREES OF FREEDOM = 112
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = +140 DEG/RH



STAGE 1 WING 6, TP-H 1011 STRESS RELAXATION MODULUS, 3 PERCENT STRAIN, 10 SEC

Figure 55

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
15.0	3	39.0	3	60.0	3	72.0	3
17.0	3	40.0	3	61.0	3	74.0	3
19.0	3	41.0	3	63.0	3	75.0	3
20.0	3	42.0	3	64.0	3	76.0	3
23.0	3	47.0	3	66.0	3	77.0	3
24.0	3	48.0	3	67.0	3	78.0	3
25.0	3	51.0	3	68.0	3	79.0	3
30.0	3	52.0	3	69.0	6		
32.0	3	53.0	3	70.0	3		
36.0	3	57.0	3	71.0	3		
							114

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 50 Sec
+140°

$Y = (+.23764294E+03) + (+.28348077E+00) \times X$
 $F = +.23938927E+01$ SIGNIFICANCE OF F = NOT SIGNIFICANT $G_T = +.39328007E+02$
 $R = +.14466082E+00$ SIGNIFICANCE OF R = NOT SIGNIFICANT $S_a = +.18321931E+00$
 $N = +.15472209E+01$ SIGNIFICANCE OF t = NOT SIGNIFICANT $S_F = +.39087666E+02$
 $N = 114$ DEGREES OF FREEDOM = 112
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = +140 DEG/RH

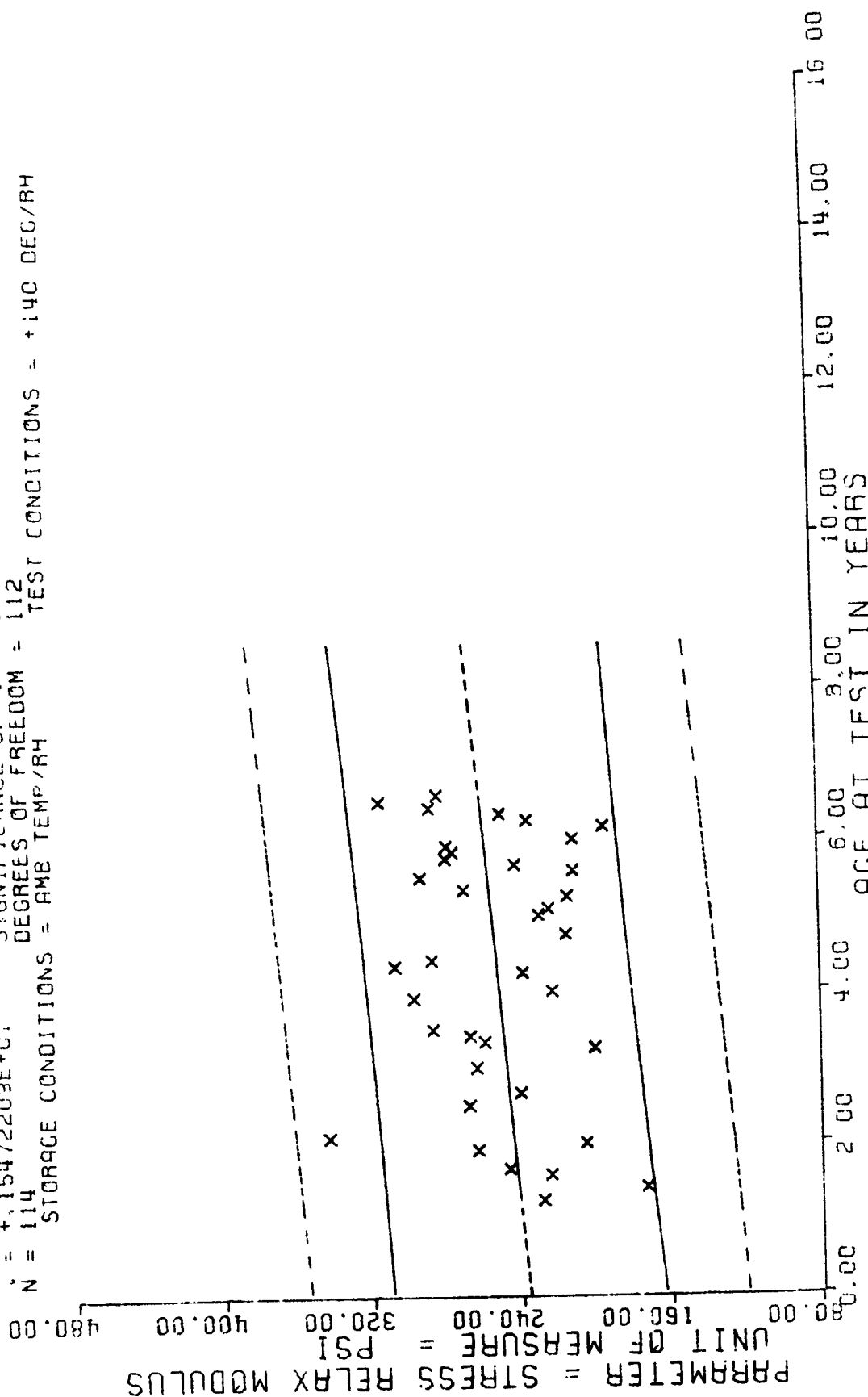


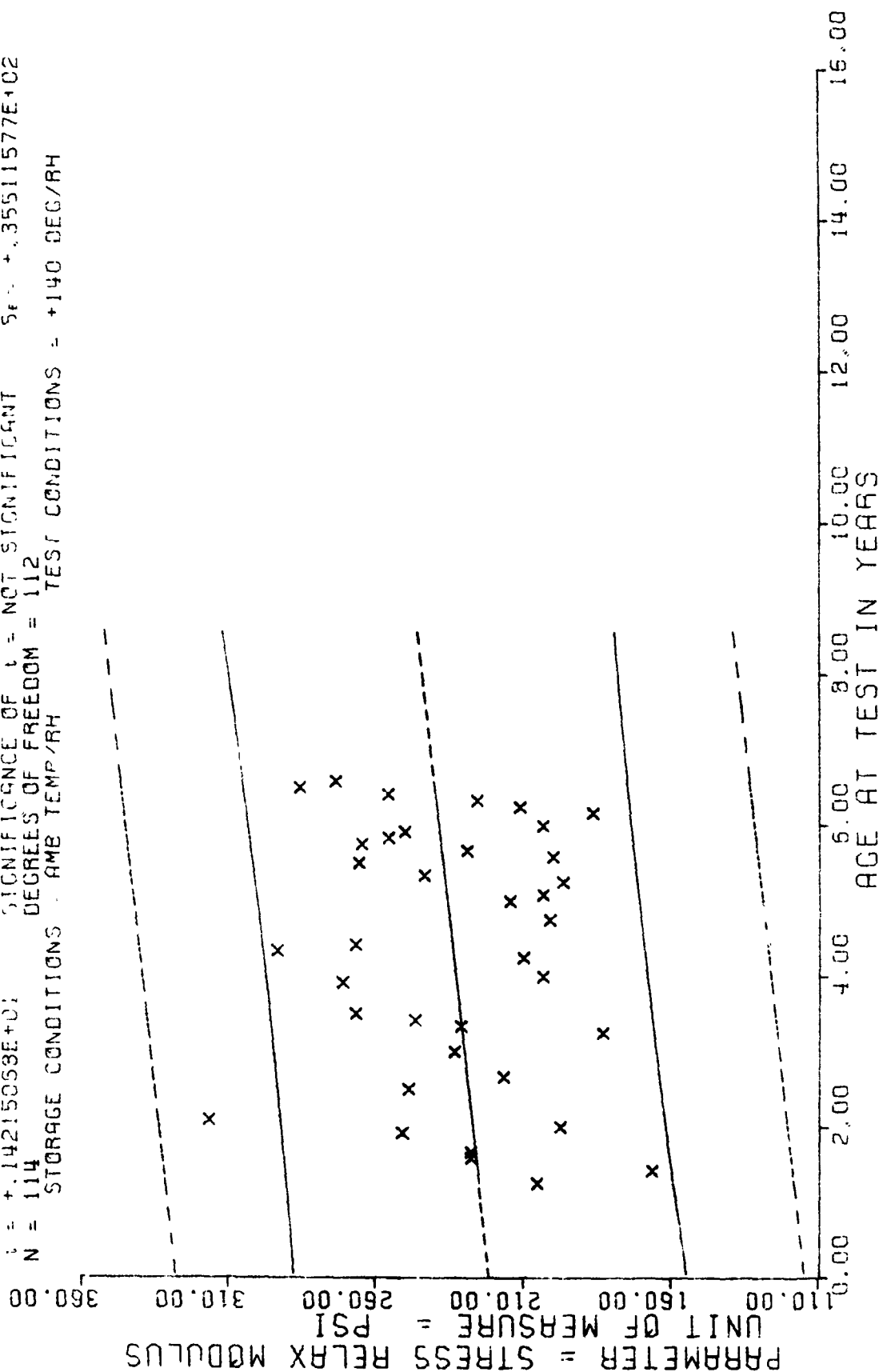
Figure 56

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
15.0	3	39.0	3	60.0	3	72.0	3
17.0	3	40.0	3	61.0	3	74.0	3
19.0	3	41.0	3	63.0	3	75.0	3
20.0	3	42.0	3	64.0	3	76.0	3
23.0	3	47.0	3	66.0	3	77.0	3
24.0	3	48.0	3	67.0	3	78.0	3
25.0	3	51.0	3	68.0	3	79.0	3
30.0	3	52.0	3	69.0	6		
32.0	3	53.0	3	70.0	3		
36.0	3	57.0	3	71.0	3		
							114

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 100 Sec
+140°

$F = +.20206817E+01$ SIGNIFICANCE OF $F =$ NOT SIGNIFICANT $G_1 = +.35671597E+02$
 $R = +.13312423E+00$ SIGNIFICANCE OF $R =$ NOT SIGNIFICANT $S_1 = +.16645676E+00$
 $t = +.14215058E+01$ SIGNIFICANCE OF $t =$ NOT SIGNIFICANT $S_2 = +.35511577E+02$
 $N = 114$ DEGREES OF FREEDOM = 112 TEST CONDITIONS = +140 DEG/RH
 STORAGE CONDITIONS = AMB TEMP/RH



STAGE 1 WING 6, TP-H 1011 STRESS RELAXATION MODULUS, 3 PERCENT STRAIN, 100 SEC

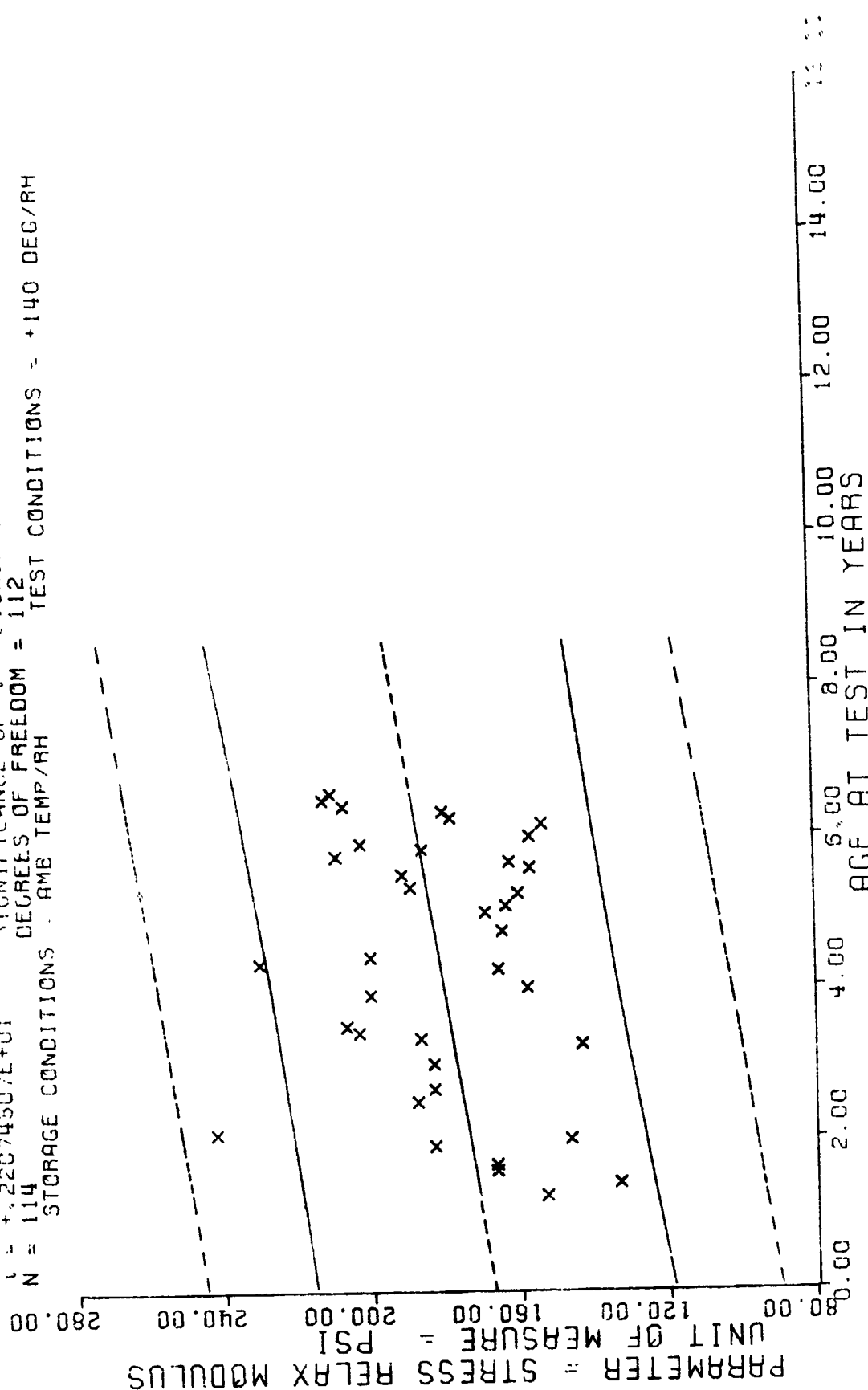
Figure 57

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
15.0	3	39.0	3	60.0	3	72.0	3
17.0	3	40.0	3	61.0	3	74.0	3
19.0	3	41.0	3	63.0	3	75.0	3
20.0	3	42.0	3	64.0	3	76.0	3
23.0	3	47.0	3	66.0	3	77.0	3
24.0	3	48.0	3	67.0	3	78.0	3
25.0	3	51.0	3	68.0	3	79.0	3
30.0	3	52.0	3	69.0	6		
32.0	3	53.0	3	70.0	3		
36.0	3	57.0	3	71.0	3		
							114

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 1000 Sec
+140°

$Y = (+.16763455E+03) + (+.26785005E+00) * X$
 F = +.48729712E+01 SIGNIFICANCE OF F = SIGNIFICANT $G = +.26325772E+02$
 R = +.20419254E+00 SIGNIFICANCE OF R = SIGNIFICANT $S_B = +.12133742E+00$
 L = +.22074507E+01 SIGNIFICANCE OF L = SIGNIFICANT $S_F = +.25885901E+02$
 N = 114 DEGREES OF FREEDOM = 112 TEST CONDITIONS = +140 DEG/RH
 STORAGE CONDITIONS = AMB TEMP/RH



STAGE 1 WING 6, TP-H 1011 STRESS RELAXATION MODULUS, 3 PERCENT STRAIN, 1000 SEC

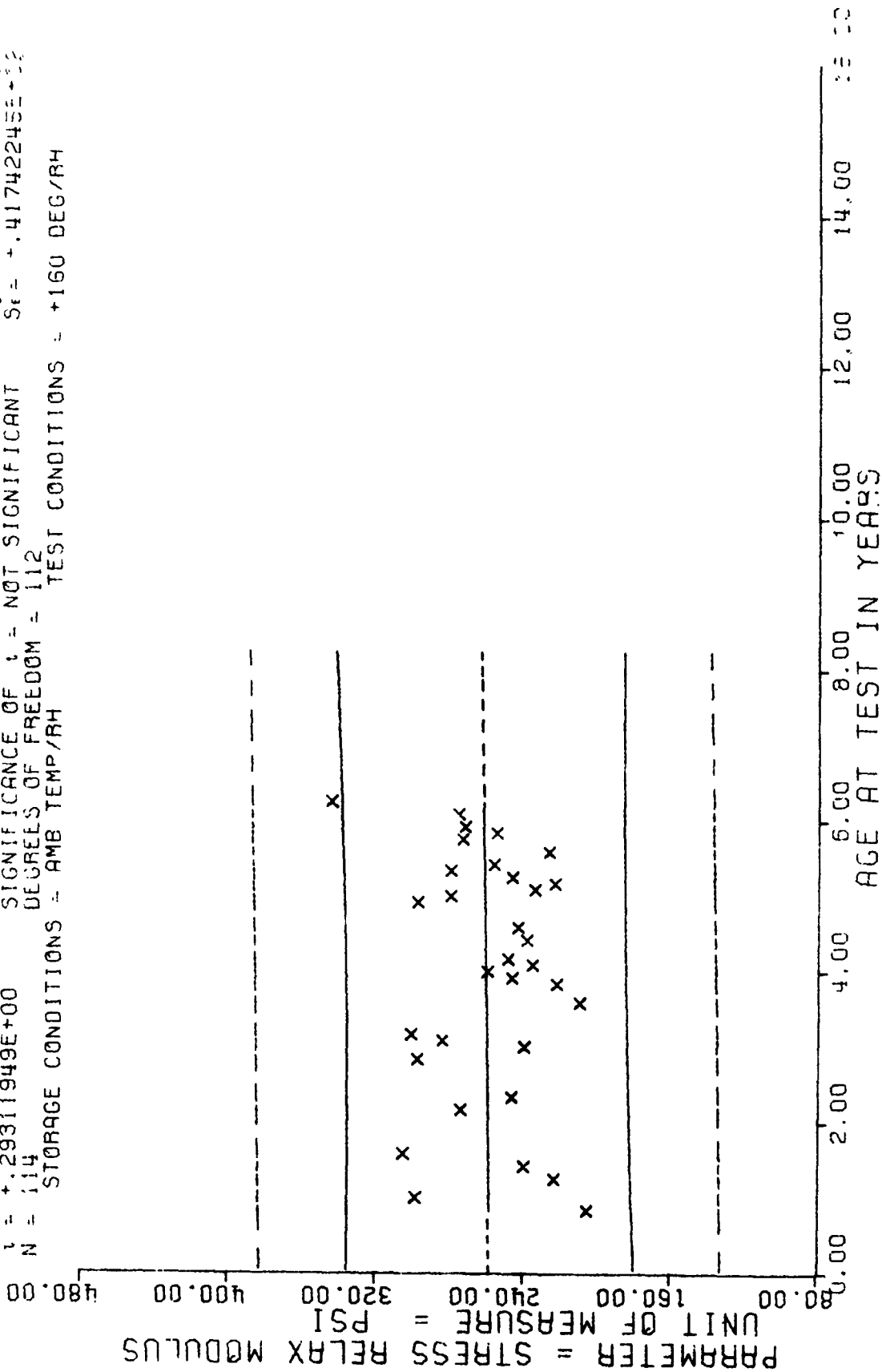
Figure 58

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
10.0	3	37.0	3	55.0	3	69.0	3
12.C	3	38.0	3	59.0	3	70.0	9
15.0	3	43.0	3	60.0	3	71.0	3
17.0	3	46.0	3	61.0	3	73.0	3
19.0	6	47.0	6	62.0	3	75.0	3
26.0	3	48.0	3	63.0	3		114
28.0	3	49.0	3	64.0	6		
34.0	6	50.0	3	65.0	3		
36.0	3	53.0	3	67.0	3		

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 10 Sec
+160°

$Y = (+.25841929E+03) + (+.59669097E-01) \times X$
 F = +.85919036E-01 SIGNIFICANCE OF F = NOT SIGNIFICANT $G = +.41573071E-12$
 P = +.27686571E-01 SIGNIFICANCE OF P = NOT SIGNIFICANT $S = +.20356577E-12$
 T = +.29311949E+00 SIGNIFICANCE OF T = NOT SIGNIFICANT $S_e = +.41742245E-12$
 N = 114 DEGREES OF FREEDOM = 112
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = +160 DEG/RH



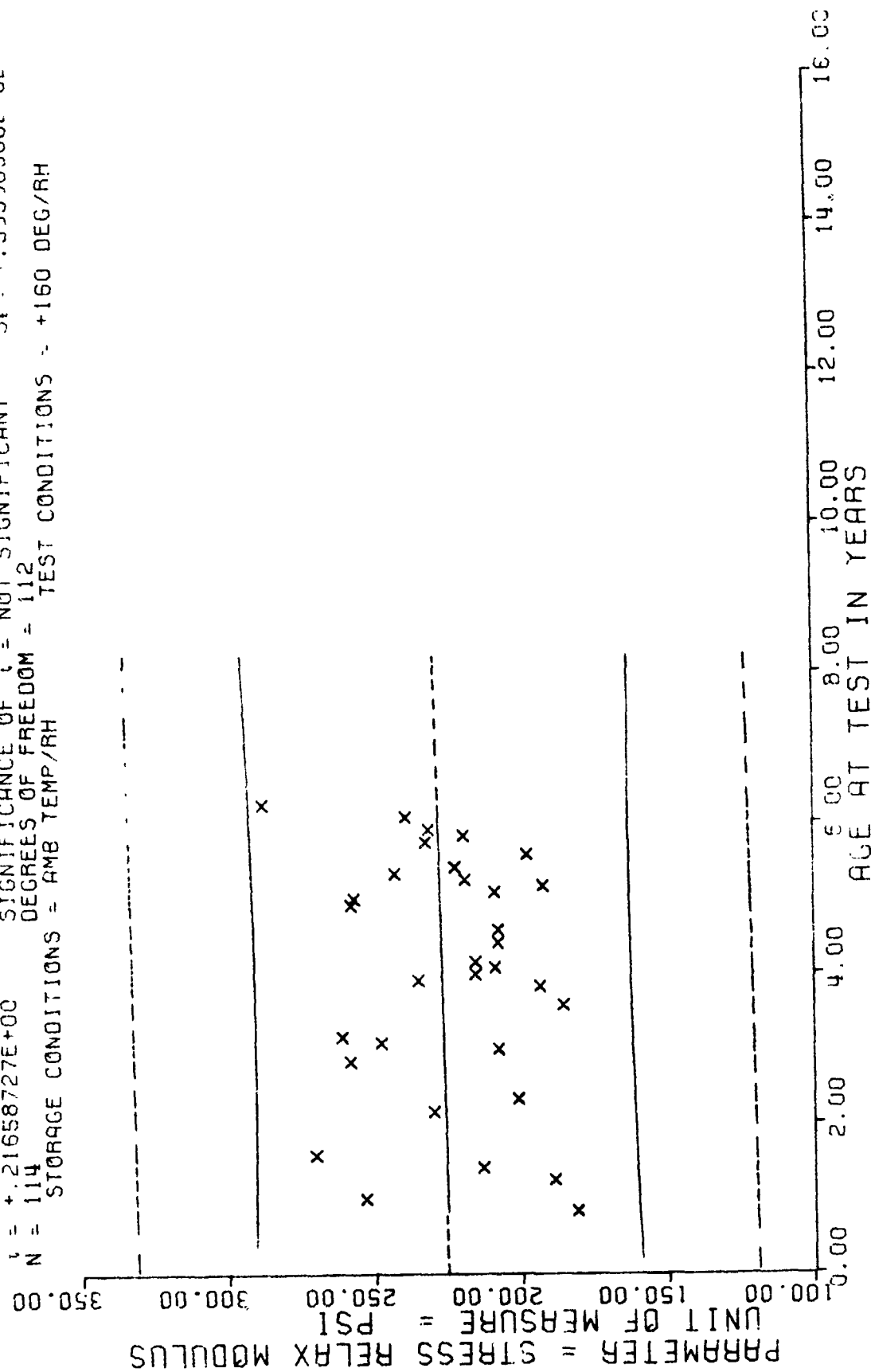
STAGE 1 WING 6, TP-H 1011 STRESS RELAXATION MODULUS, 3 PERCENT STRAIN, 10 SEC

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
10.0	3	37.0	3	55.0	3	69.0	3
12.0	3	38.0	3	59.0	3	70.0	9
15.0	3	43.0	3	60.0	3	71.0	3
17.0	3	46.0	3	61.0	3	73.0	3
19.0	6	47.0	6	62.0	3	75.0	3
26.0	3	48.0	3	63.0	3		114
28.0	3	49.0	3	64.0	6		
34.0	6	50.0	3	65.0	3		
36.0	3	53.0	3	67.0	3		

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 50 Sec
+160°

$Y = (+.22542800E+03) + (+.37338560E-01) * X$
 F = +.46910048E-01 SIGNIFICANCE OF F = NOT SIGNIFICANT $G = +.35201112E+02$
 R = +.20461289E-01 SIGNIFICANCE OF R = NOT SIGNIFICANT $S = +.17239498E+00$
 t = +.21658727E+00 SIGNIFICANCE OF t = NOT SIGNIFICANT $St = +.35350508E+02$
 N = 114 DEGREES OF FREEDOM = 112
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = +160 DEG/RH



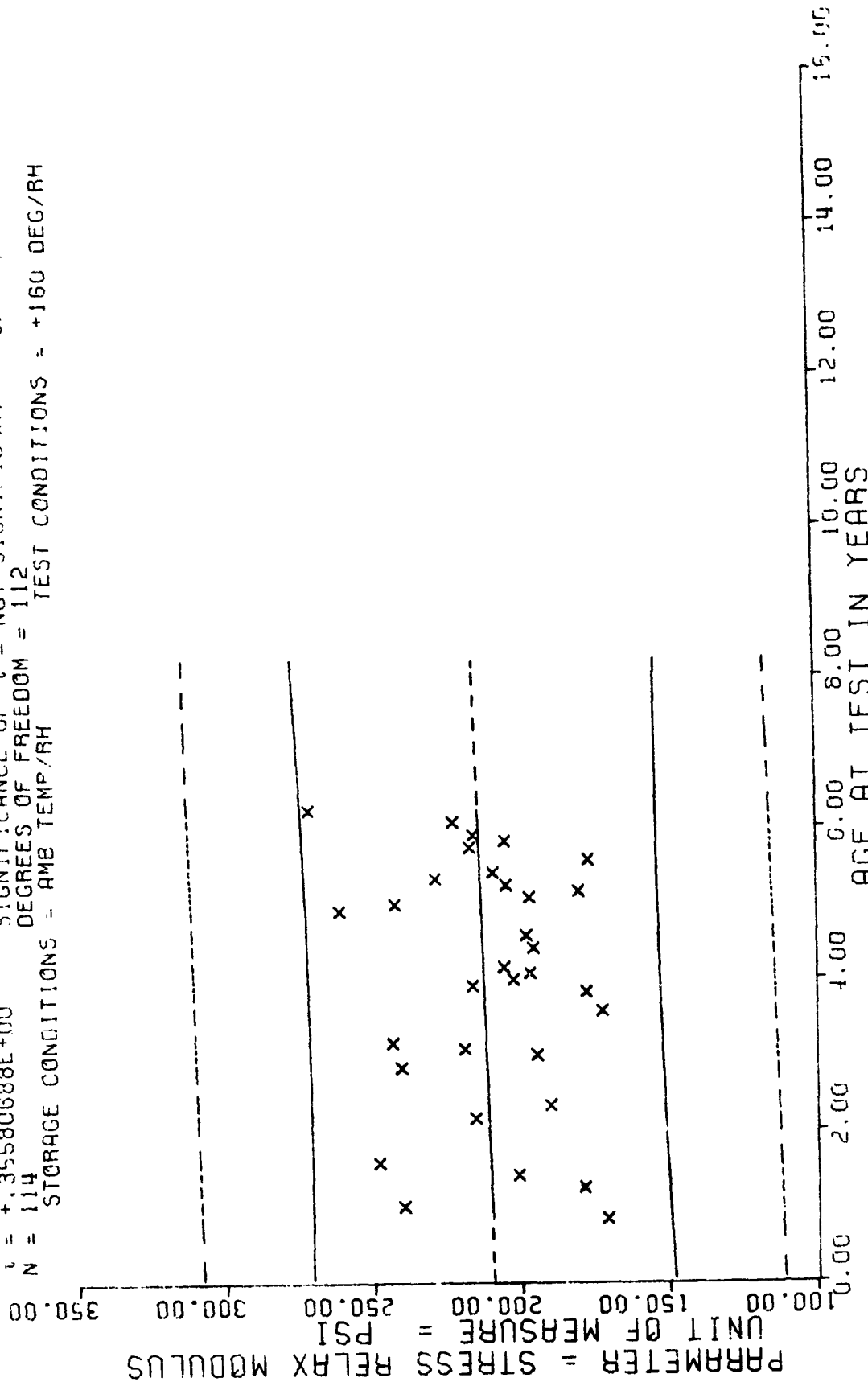
STAGE 1 WING 6, TP-H 1011 STRESS RELAXATION MODULUS, 3 PERCENT STRAIN, 50 SEC

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
10.0	3	37.0	3	55.0	3	69.0	3
12.0	3	38.0	3	59.0	3	70.0	9
15.0	3	43.0	3	60.0	3	71.0	3
17.0	3	46.0	3	61.0	3	73.0	3
19.0	6	47.0	6	62.0	3	75.0	3
26.0	3	48.0	3	63.0	3		114
28.0	3	49.0	3	64.0	6		
34.0	6	50.0	3	65.0	3		
36.0	3	53.0	3	67.0	3		

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 100 Sec
+160°

$F = +.12659853E+00$
 $R = +.33601604E-01$
 $U = +.35580688E+00$
 $N = 114$
 $Y = (+.20983656E+03) + (+.56948710E-01) \times X$
 SIGNIFICANCE OF F = NOT SIGNIFICANT
 SIGNIFICANCE OF R = NOT SIGNIFICANT
 SIGNIFICANCE OF U = NOT SIGNIFICANT
 DEGREES OF FREEDOM = 112
 STORAGE CONDITIONS = AMB TEMP/RH
 TEST CONDITIONS = +160 DEG/RH
 $G_v = +.32693069E+02$
 $S_0 = +.16005510E+00$
 $S_f = +.32820152E+02$



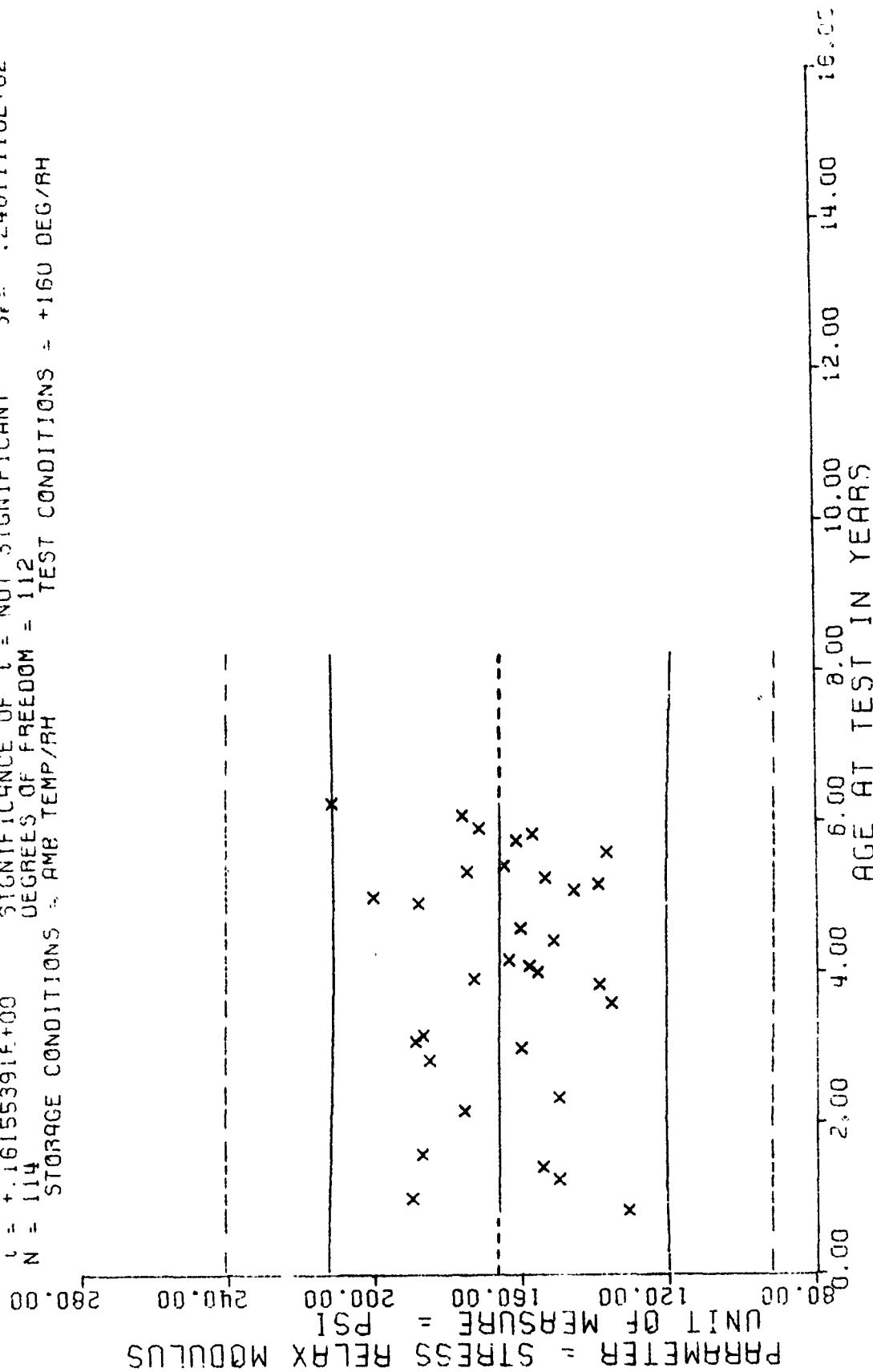
SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
10.0	3	37.0	3	55.0	3	69.0	3
12.0	3	38.0	3	59.0	3	70.0	9
15.0	3	43.0	3	60.0	3	71.0	3
17.0	3	46.0	3	61.0	3	73.0	3
19.0	6	47.0	6	62.0	3	75.0	3
26.0	3	48.0	3	63.0	3		114
28.0	3	49.0	3	64.0	6		
34.0	6	50.0	3	65.0	3		
36.0	3	53.0	3	67.0	3		

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 1000 Sec

+160°

$Y = (+.16681650E+03) + (-.19547564E-01) * X$
 F = +.26099668E-01 SIGNIFICANCE OF F = NOT SIGNIFICANT $G_r = +.24703960E+02$
 R = +.15263632E-01 SIGNIFICANCE OF R = NOT SIGNIFICANT $S_0 = +.12099714E+00$
 U = +.16155391E+00 SIGNIFICANCE OF U = NOT SIGNIFICANT $S_r = +.24811110E+02$
 N = 114 DEGREES OF FREEDOM = 112 TEST CONDITIONS = +160 DEG/RH
 STORAGE CONDITIONS = AMB TEMP/RH



SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
10.0	3	40.0	3	63.0	6
12.0	3	41.0	3	64.0	6
15.0	6	42.0	3	65.0	6
17.0	6	43.0	3	66.0	3
19.0	9	46.0	3	67.0	6
20.0	3	47.0	6	68.0	3
23.0	3	48.0	9	69.0	6
24.0	3	49.0	3	70.0	11
25.0	3	50.0	3	71.0	3
26.0	3	51.0	3	72.0	6
28.0	3	52.0	3	73.0	3
30.0	3	53.0	6	75.0	9
32.0	3	56.0	3	76.0	6
34.0	3	57.0	3	77.0	3
35.0	3	59.0	3	79.0	3
36.0	6	60.0	6	81.0	3
38.0	3	61.0	6		
39.0	6	62.0	3		
					227

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 10 Sec

+130°

$Y = (+.23386137E+03) + (-.12309757E+00) \times X$
 $F = +.10753631E+01$ SIGNIFICANCE OF F = NOT SIGNIFICANT $G = +.35538015E+02$
 $R = -.68968527E-01$ SIGNIFICANCE OF R = NOT SIGNIFICANT $S = +.11870573E+02$
 $t = +.10369971E+01$ SIGNIFICANCE OF t = NOT SIGNIFICANT $S_2 = +.35532091E+02$
 $N = 227$ DEGREES OF FREEDOM = 225 TEST CONDITIONS = +180 DEC/RH
 STORAGE CONDITIONS = AMB TEMP/RH

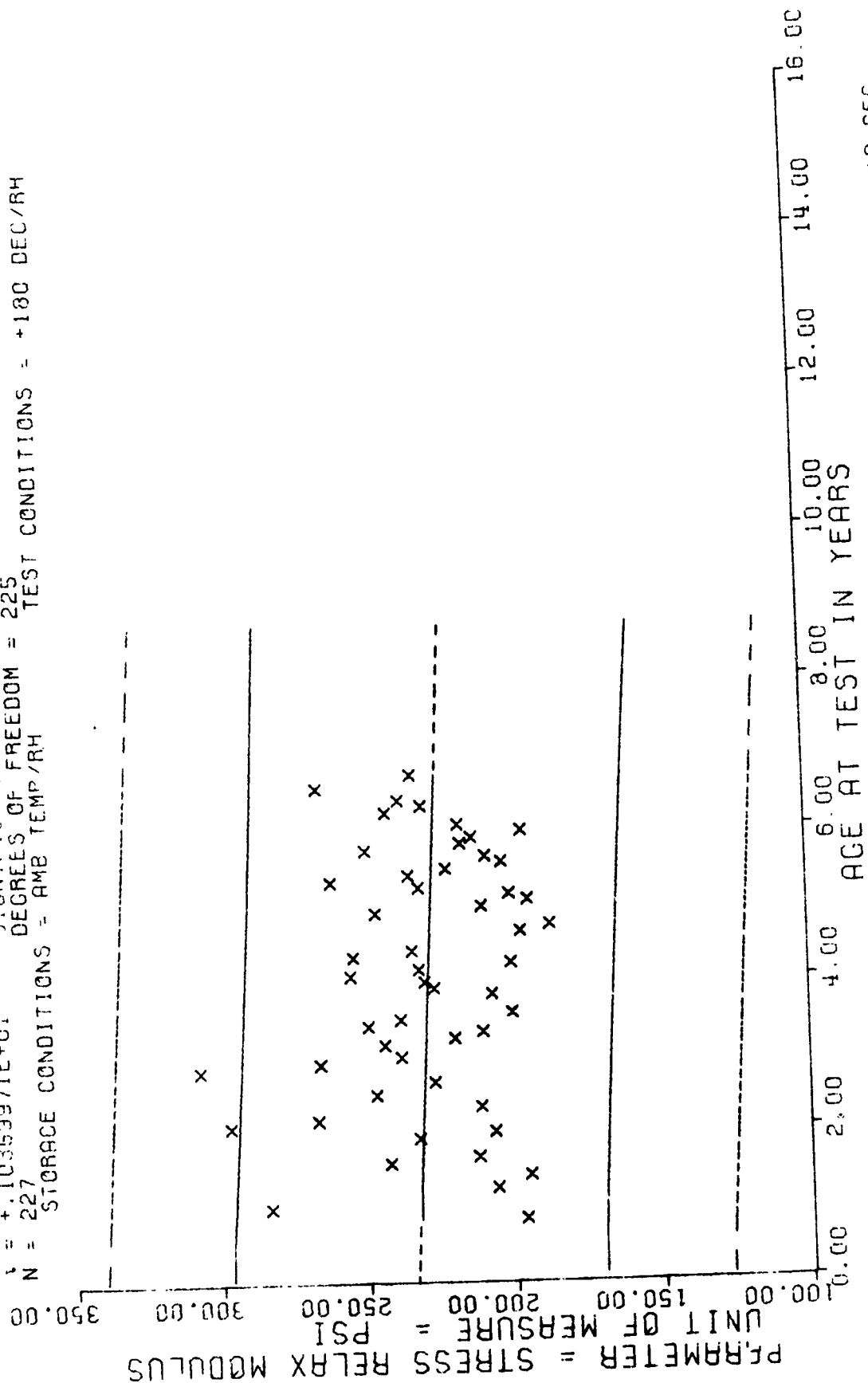


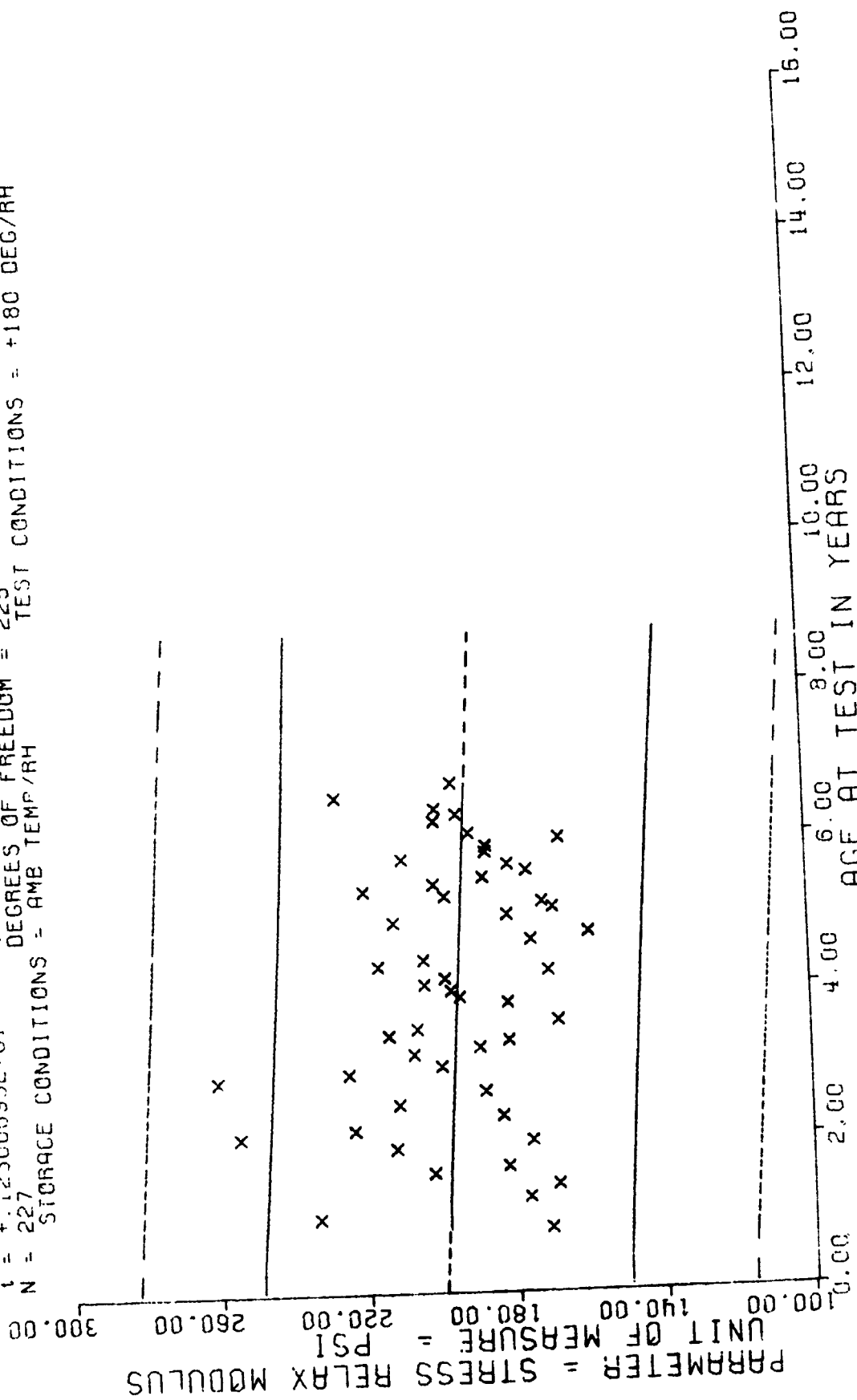
Figure 63

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
10.0	3	41.0	3	65.0	6
12.0	3	42.0	3	66.0	3
15.0	6	43.0	3	67.0	6
17.0	6	46.0	3	68.0	3
19.0	9	47.0	6	69.0	6
20.0	3	48.0	9	70.0	11
23.0	3	49.0	3	71.0	3
24.0	3	50.0	3	72.0	6
25.0	3	51.0	3	73.0	3
26.0	3	52.0	3	75.0	9
28.0	3	53.0	6	76.0	6
30.0	3	56.0	3	77.0	3
32.0	3	57.0	3	79.0	3
34.0	3	59.0	3	81.0	3
35.0	3	60.0	6		<u>227</u>
36.0	6	61.0	6		
38.0	3	62.0	3		
39.0	6	63.0	6		
40.0	3	64.0	6		

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 50 Sec
+180°

$Y = (+.19385403E+03) + (-.11404030E+00) * X$
 SIGNIFICANCE OF F = NOT SIGNIFICANT
 SIGNIFICANCE OF R = NOT SIGNIFICANT
 SIGNIFICANCE OF t = NOT SIGNIFICANT
 DEGREES OF FREEDOM = 225
 TEST CONDITIONS = +180 DEG/RH
 STORAGE CONDITIONS = AMB TEMP/RH
 N = 227
 F = +.15130718E+01
 R = -.81730308E-01
 t = +.12300598E+01
 S_r = +.27782405E+02
 S_b = +.92710417E-01
 S_f = +.27750922E+02



STAGE I WING G. TP-H 1011 STRESS RELAXATION MODULUS, 3 PERCENT STRAIN, 50 SEC
 Figure 64

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
10.0	3	41.0	3	65.0	6
12.0	3	42.0	3	66.0	3
15.0	6	43.0	3	67.0	6
17.0	6	46.0	3	68.0	3
19.0	9	47.0	6	69.0	6
20.0	3	48.0	9	70.0	11
23.0	3	49.0	3	71.0	3
24.0	3	50.0	3	72.0	6
25.0	3	51.0	3	73.0	3
26.0	3	52.0	3	75.0	9
28.0	3	53.0	6	76.0	6
30.0	3	56.0	3	77.0	3
32.0	3	57.0	3	79.0	3
34.0	3	59.0	3	81.0	3
35.0	3	60.0	6		
36.0	6	61.0	6		
38.0	3	62.0	3		
39.0	6	63.0	6		
40.0	3	64.0	6		
					227

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 100 Sec
+130°

$F = +.13764057E+01$ SIGNIFICANCE OF $F =$ NOT SIGNIFICANT
 $R = -.77975407E-01$ SIGNIFICANCE OF $R =$ NOT SIGNIFICANT
 $t = +.11732031E+01$ SIGNIFICANCE OF $t =$ NOT SIGNIFICANT
 $N = 227$ DEGREES OF FREEDOM = 225
 STORAGE CONDITIONS = AMB TEMP/RH
 TEST CONDITIONS = +180 DEG/RH

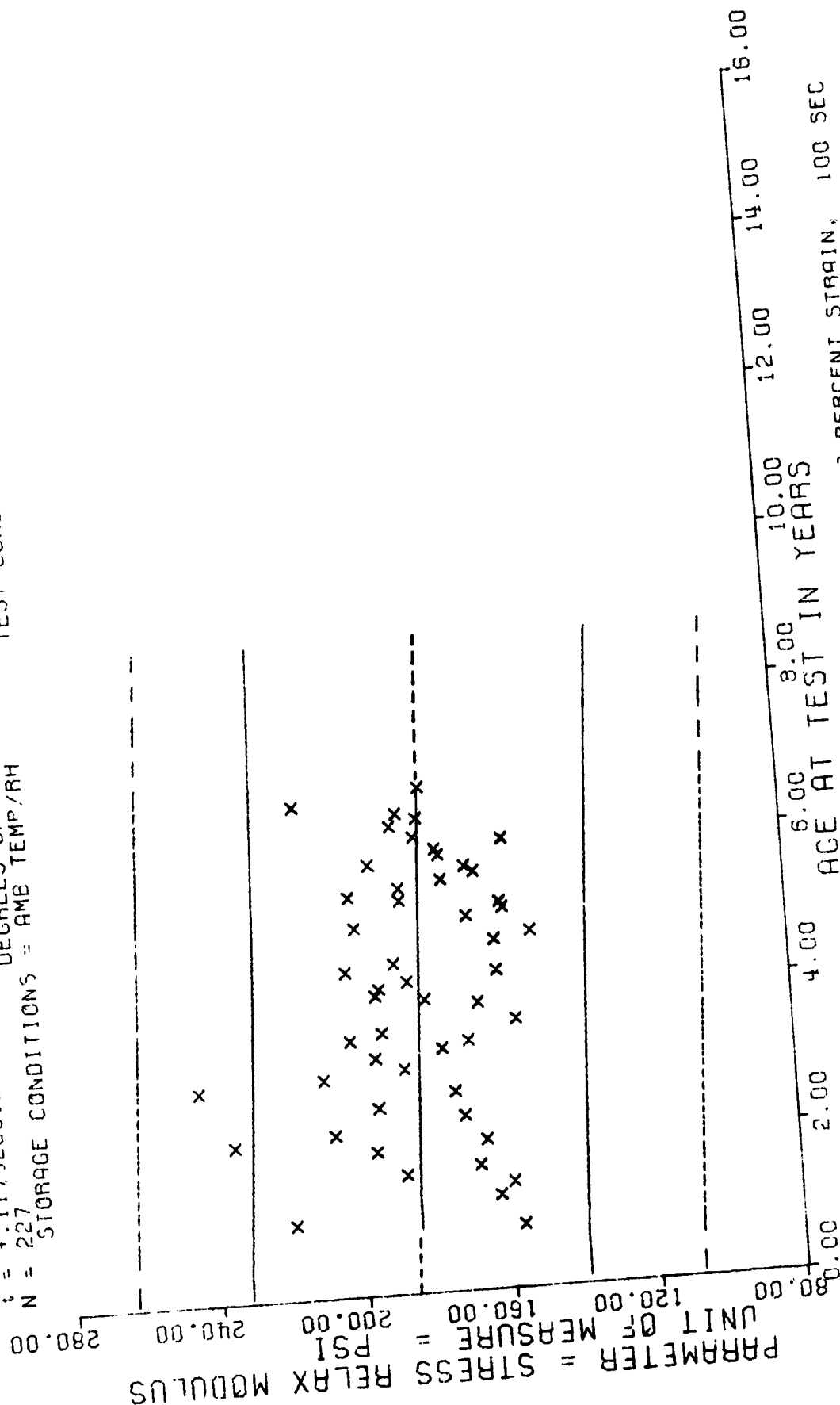


Figure 65

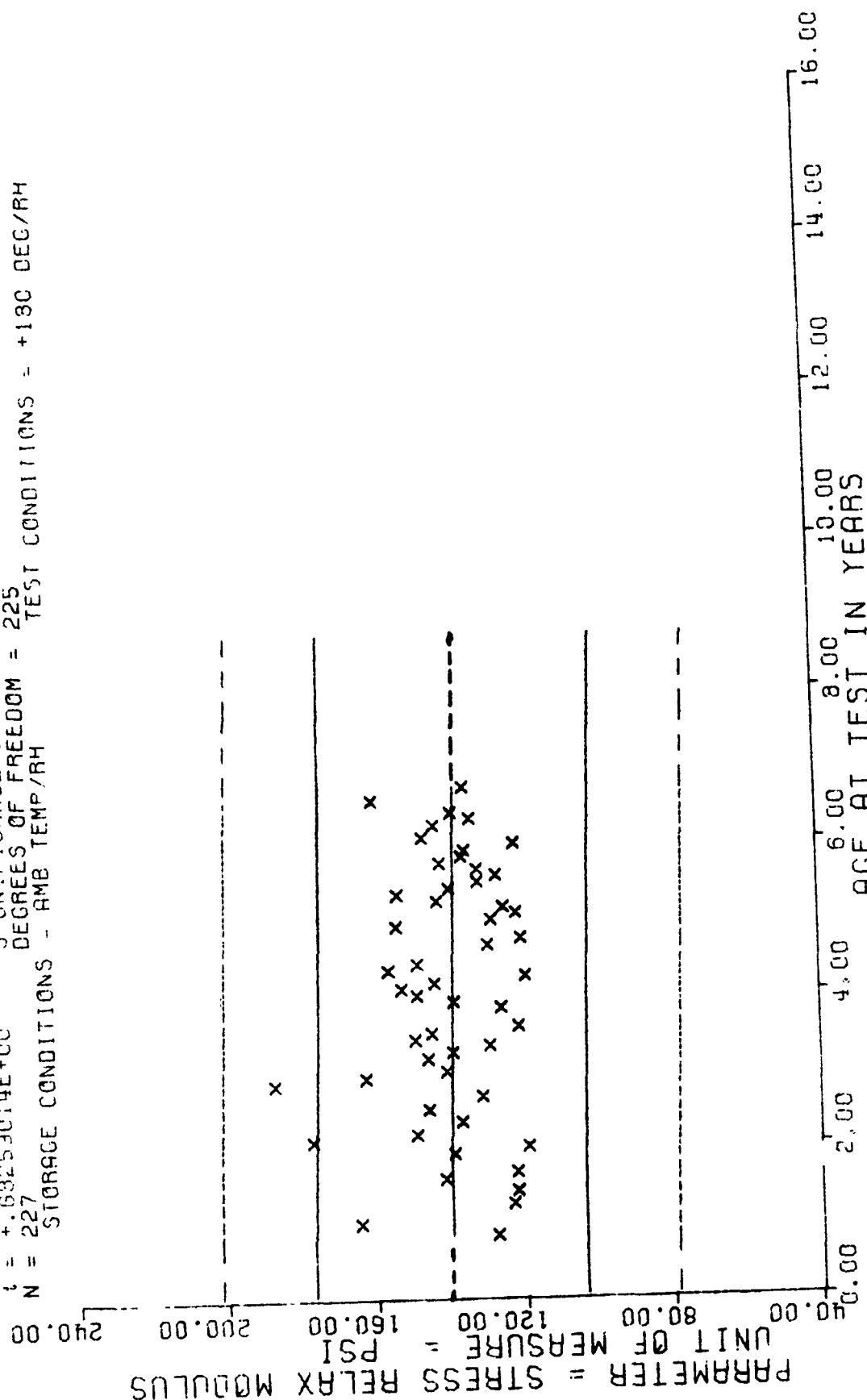
STAGE 1 WING G, TP-H 1011 STRESS RELAXATION MODULUS, 3 PERCENT STRAIN, 100 SEC

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
10.0	3	41.0	3	65.0	6
12.0	3	42.0	3	66.0	3
15.0	6	43.0	3	67.0	6
17.0	6	45.0	3	68.0	3
19.0	9	47.0	6	69.0	6
20.0	3	48.0	9	70.0	11
23.0	3	49.0	3	71.0	3
24.0	3	50.0	3	72.0	6
25.0	3	51.0	3	73.0	3
26.0	3	52.0	3	75.0	9
28.0	3	53.0	6	76.0	6
30.0	3	56.0	3	77.0	3
32.0	3	57.0	3	79.0	3
34.0	3	59.0	3	81.0	3
35.0	3	60.0	6		
36.0	6	61.0	6		
38.0	3	62.0	3		
39.0	6	63.0	6		
40.0	3	64.0	6		
					227

Stage 1 Wing 6, TP-H 1011 Stress Relaxation Modulus, 3 Percent Strain, 1000 Sec
+180°

$Y = (+.14066120E+03) + (-.4661387L-01) \times X$
 $F = +.46532930E+00$ SIGNIFICANCE OF F = NOT SIGNIFICANT $G_1 = +.20416928E+02$
 $R = -.45458965E-01$ SIGNIFICANCE OF R = NOT SIGNIFICANT $S_0 = +.68289713E-01$
 $t = +.68253014E+00$ SIGNIFICANCE OF t = NOT SIGNIFICANT $S_E = +.20441095E-02$
 $N = 227$ DEGREES OF FREEDOM = 225 TEST CONDITIONS = +130 DEG/RH
 STORAGE CONDITIONS - AMB TEMP/RH



STAGE 1 WING 6. TP-H 1011 STRESS RELAXATION MODULUS, 3 PERCENT STRAIN, 1000 SEC

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
2.0	3	21.0	5	48.0	10	70.0	15
3.0	15	23.0	5	49.0	15	71.0	15
4.0	8	25.0	5	50.0	5	72.0	10
5.0	11	26.0	5	52.0	5	73.0	5
6.0	23	28.0	5	53.0	10	75.0	5
7.0	18	31.0	11	54.0	5	76.0	10
8.0	21	32.0	14	56.0	10	77.0	9
9.0	24	33.0	13	58.0	5	78.0	6
10.0	28	34.0	6	59.0	5	80.0	5
11.0	24	35.0	12	60.0	5	81.0	5
12.0	28	37.0	10	61.0	10		722
13.0	28	38.0	5	62.0	5		
14.0	20	39.0	5	63.0	5		
15.0	28	40.0	10	64.0	5		
16.0	28	42.0	7	65.0	15		
17.0	9	43.0	5	66.0	5		
18.0	20	44.0	5	67.0	10		
19.0	8	46.0	5	68.0	10		
20.0	10	47.0	5	69.0	5		

Constant Strain

TP-H 1011

Wing 6

Stage 1

$Y = (+.14066120E+03) + (-.46613830E-01) \times X$
 SIGNIFICANCE OF F = NOT SIGNIFICANT $S_e = +.20416929E+03$
 SIGNIFICANCE OF R = NOT SIGNIFICANT $S_b = +.68233713E-03$
 SIGNIFICANCE OF t = NOT SIGNIFICANT $S_c = +.20441095E-03$
 DEGREES OF FREEDOM = 225
 N = 227
 STORAGE CONDITIONS = AMB TEMP/RH
 TEST CONDITIONS = +130 DEG/RH

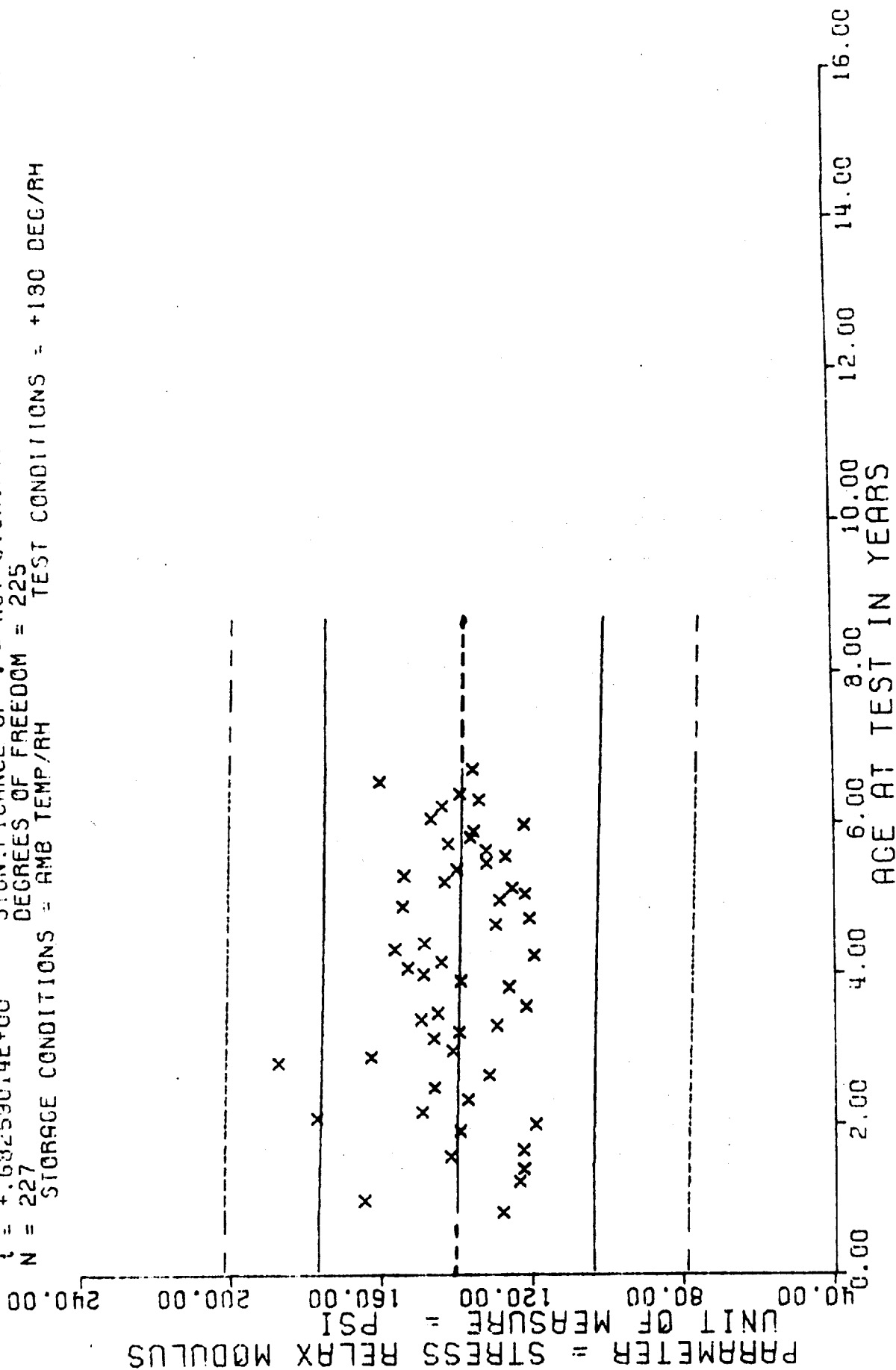


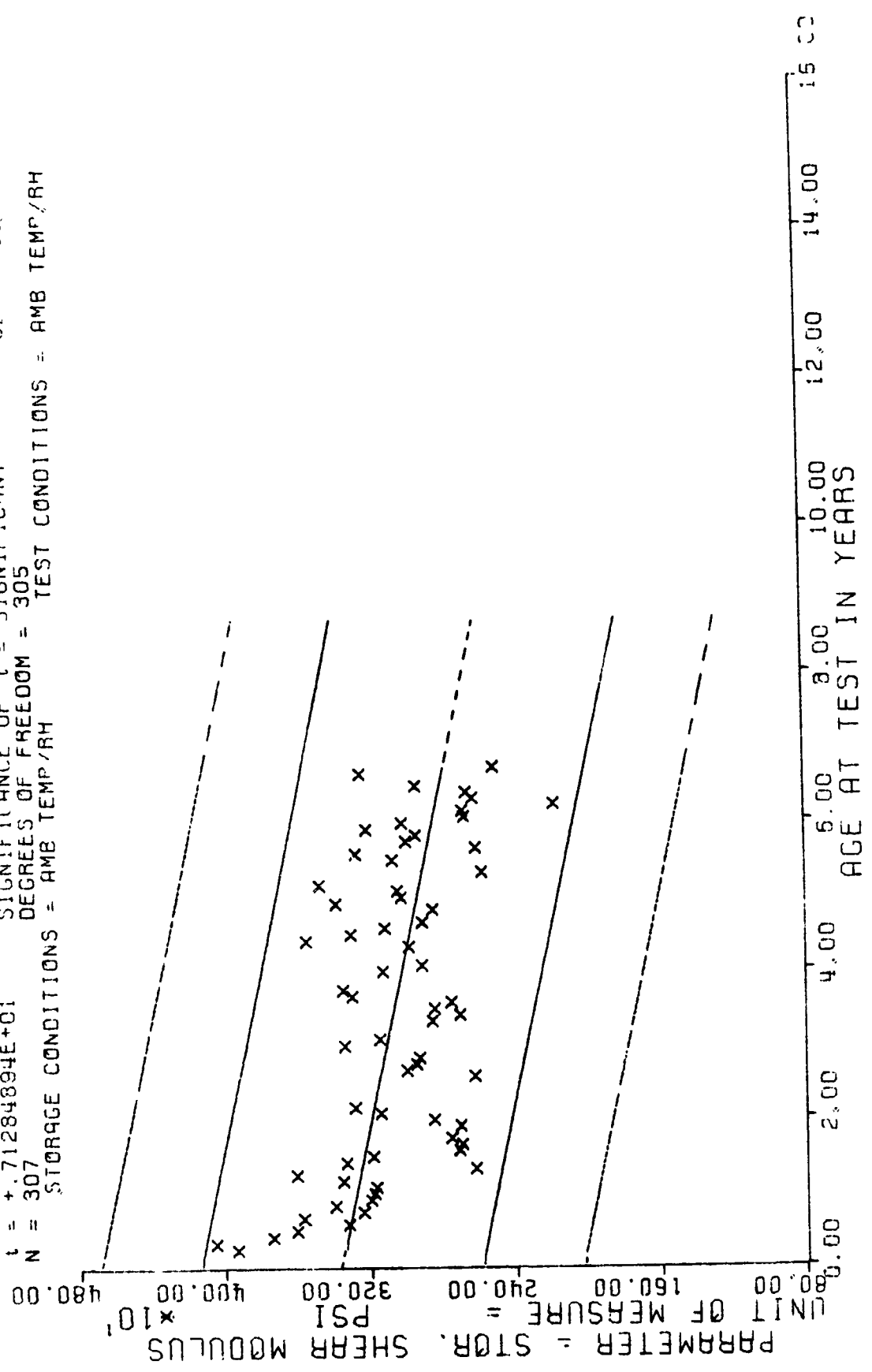
Figure 66

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
3.0	3	21.0	3	49.0	4	72.0	2
4.0	7	23.0	6	52.0	3	73.0	4
5.0	4	24.0	5	53.0	7	74.0	4
6.0	4	25.0	4	54.0	2	75.0	2
7.0	6	26.0	2	55.0	4	76.0	7
8.0	3	31.0	2	56.0	2	77.0	3
9.0	13	32.0	5	58.0	4	78.0	2
10.0	18	33.0	9	59.0	2	80.0	2
11.0	21	34.0	4	60.0	2	81.0	2
12.0	16	36.0	1	61.0	6		307
13.0	11	37.0	2	62.0	2		
14.0	16	40.0	6	64.0	2		
15.0	6	41.0	2	66.0	4		
16.0	5	42.0	3	67.0	2		
17.0	2	43.0	2	68.0	4		
18.0	7	44.0	5	69.0	4		
19.0	1	45.0	1	70.0	8		
20.0	4	48.0	2	71.0	6		

Stage 1 Wing 6, TP-H 1011 Dynamic Response, Stor Shear Mod 200 HZ, 70 GM CT WT

$F = +.50815361E+02$ SIGNIFICANCE OF F = SIGNIFICANT $G = +.47783856E+03$
 $R = -.37790719E+00$ SIGNIFICANCE OF R = SIGNIFICANT $S_0 = +.10287958E+01$
 $t = +.71284894E+01$ SIGNIFICANCE OF t = SIGNIFICANT $S_F = +.44312837E+03$
 $N = 307$ DEGREES OF FREEDOM = 305
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH



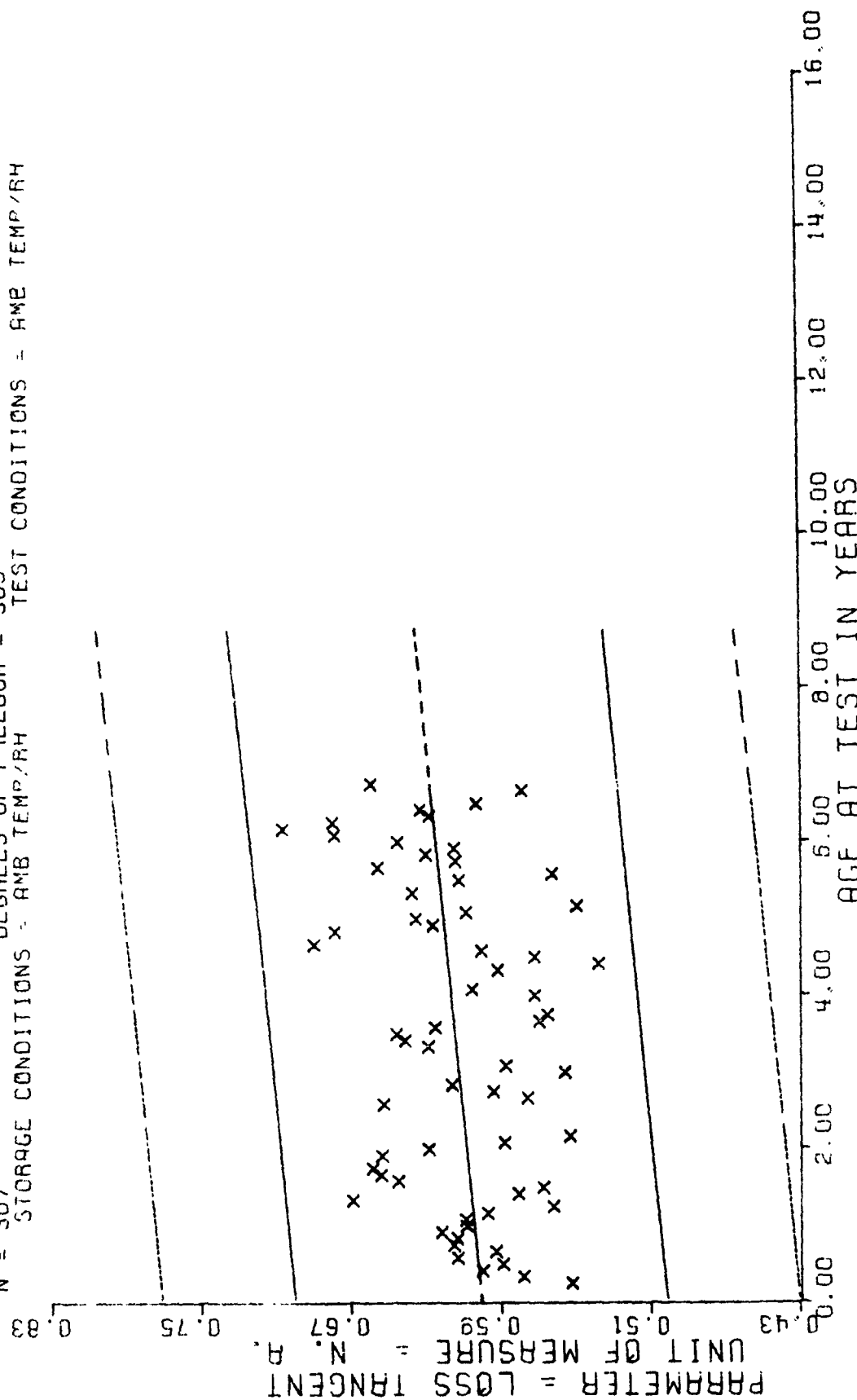
STAGE 1 WING 6, TP-H 1011 DYNAMIC RESPONSE, STOR SHEAR MOD, 200 HZ, 70 CM CT WT

Figure 68

[illegible]

- 148 -

$Y = 1 + .60113235E+00 + (.32561542E-03) \times X$
 $F = +.60984045E+01$ SIGNIFICANCE OF F = SIGNIFICANT $G_1 = +.57264487E-01$
 $R = +.14001005E+00$ SIGNIFICANCE OF R = SIGNIFICANT $S_0 = +.13185507E-03$
 $t = +.24694948E+01$ SIGNIFICANCE OF t = SIGNIFICANT $SE = +.56793312E-01$
 $N = 307$ DEGREES OF FREEDOM = 305
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH



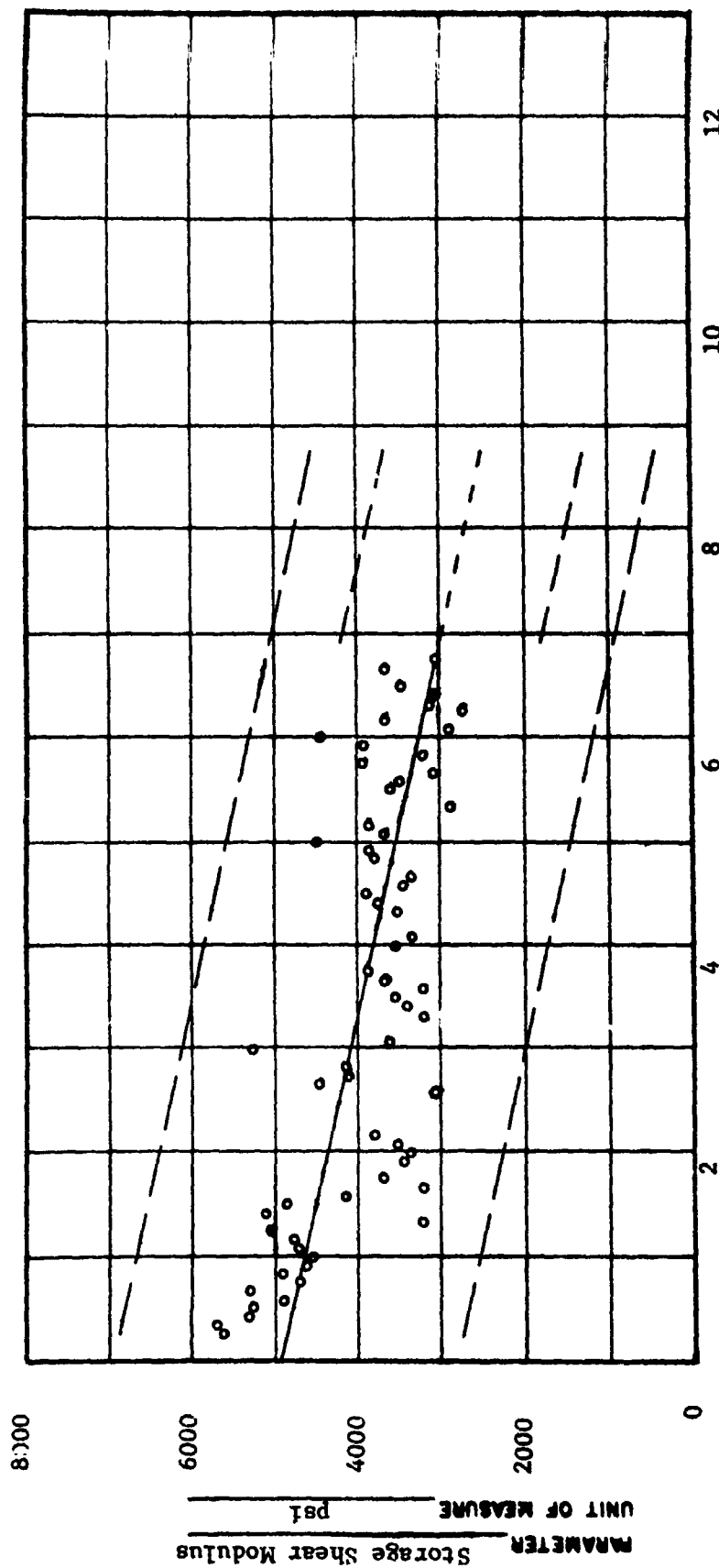
STAGE 1 WING 6, 1P-H 1011 DYNAMIC RESPONSE, LOSS TANGENT, 200 HZ, 70 GM. CT. WT

Figure 69

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
3.0	3	23.0	6	53.0	7	75.0	2
4.0	7	24.0	5	54.0	2	76.0	7
5.0	4	25.0	4	55.0	4	77.0	3
6.0	4	26.0	2	56.0	2	78.0	2
7.0	6	31.0	2	58.0	4	80.0	2
8.0	3	32.0	5	59.0	2	81.0	2
9.0	13	33.0	9	60.0	2		
10.0	18	34.0	5	61.0	6		
11.0	21	36.0	1	62.0	2		
12.0	16	42.0	3	64.0	4		
13.0	11	37.0	2	66.0	2		
14.0	16	40.0	6	67.0	4		
15.0	6	41.0	2	68.0	4		
16.0	5	43.0	2	69.0	4		
17.0	2	44.0	5	70.0	8		
18.0	7	45.0	1	71.0	6		
19.0	1	48.0	2	72.0	2		
20.0	4	49.0	4	73.0	4		
21.0	3	52.0	3	74.0	4		
							308

Stage 1 Wing 6, TP-H 1011, Dynamic Response, Storage Shear Modulus, 500 Hz 70 Gram Center Weight



STORAGE TIME (YEARS)

REG EQ $Y = 4913.91 - 22.9207 (x)$
 F RATIO 206.7494
 DEG OF FREEDOM 1 and 306
 SIG OF F Significant
 STD DEV OF $\bar{y} (\sigma_y)$ 887.34
 " 308
 SPEC CONFIG 3.3" x 0.33" disc
 CORRELATION -0.6350
 SIG OF CORRELATION Significant
 STD ERROR OF $y (s_{y,1})$ 686.61
 STD ERROR OF REG COEFF 1.594
 CALC "t", SLOPE 14.3788
 "t" REQ'D FOR SIG at 95% 1.962
 STORAGE COND Ambient Temp/Rel
 TEST COND Ambient Temp/Rel

--- REGRESSION LINE
 --- 90-90 TOLERANCE BAND
 --- 3 SIGMA BAND
 o FAILURE CRITERIA
 RANGE OF DATA
 MEAN VALUE OF DATA:
 OOAMA MEAN

APPROVED, DAPP, JULY 70, L.D.

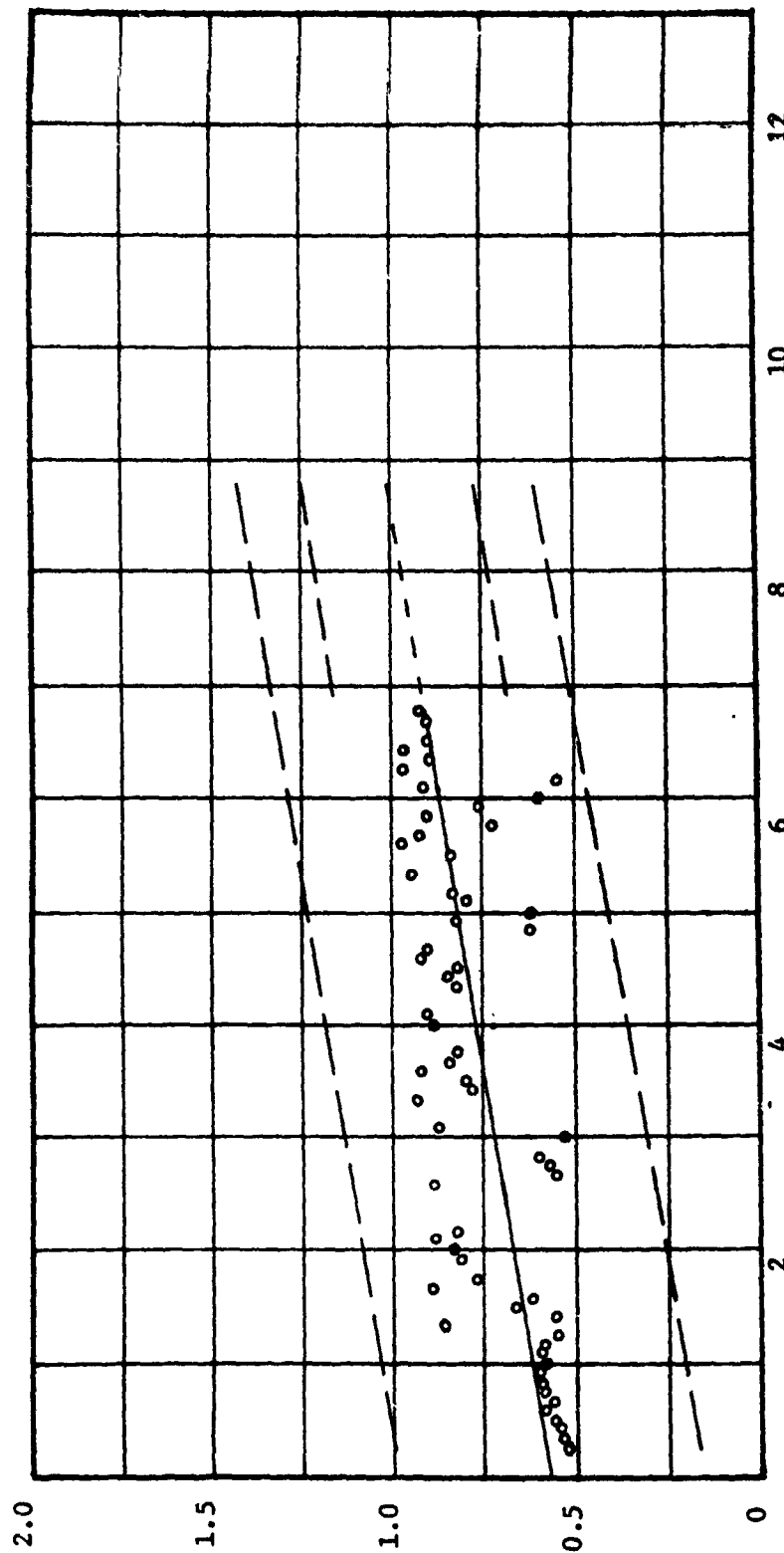
Stage 1 Wing 6, TP-H 1011, Dynamic Response, Storage Shear Modulus, 500 Hz
 70 Gram Center Weight

Figure 70

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
3.0	3	55.0	4	78.0	2
4.0	7	56.0	2	80.0	2
5.0	4	58.0	4	81.0	2
6.0	4	59.0	2		<u>2</u>
7.0	6	60.0	2		300
8.0	3	61.0	6		
9.0	13	62.0	2		
10.0	18	64.0	2		
11.0	21	66.0	4		
12.0	16	67.0	2		
13.0	11	68.0	4		
14.0	16	69.0	4		
15.0	6	70.0	7		
16.0	5	71.0	5		
17.0	2	72.0	2		
18.0	7	73.0	3		
19.0	1	74.0	4		
20.0	4	75.0	2		
21.0	3	76.0	7		
23.0	6	77.0	2		

Stage 1 Wing 6, TP-H 1011, Dynamic Response, Loss Tangent, 500 Hz, 70 Gram Center Weight

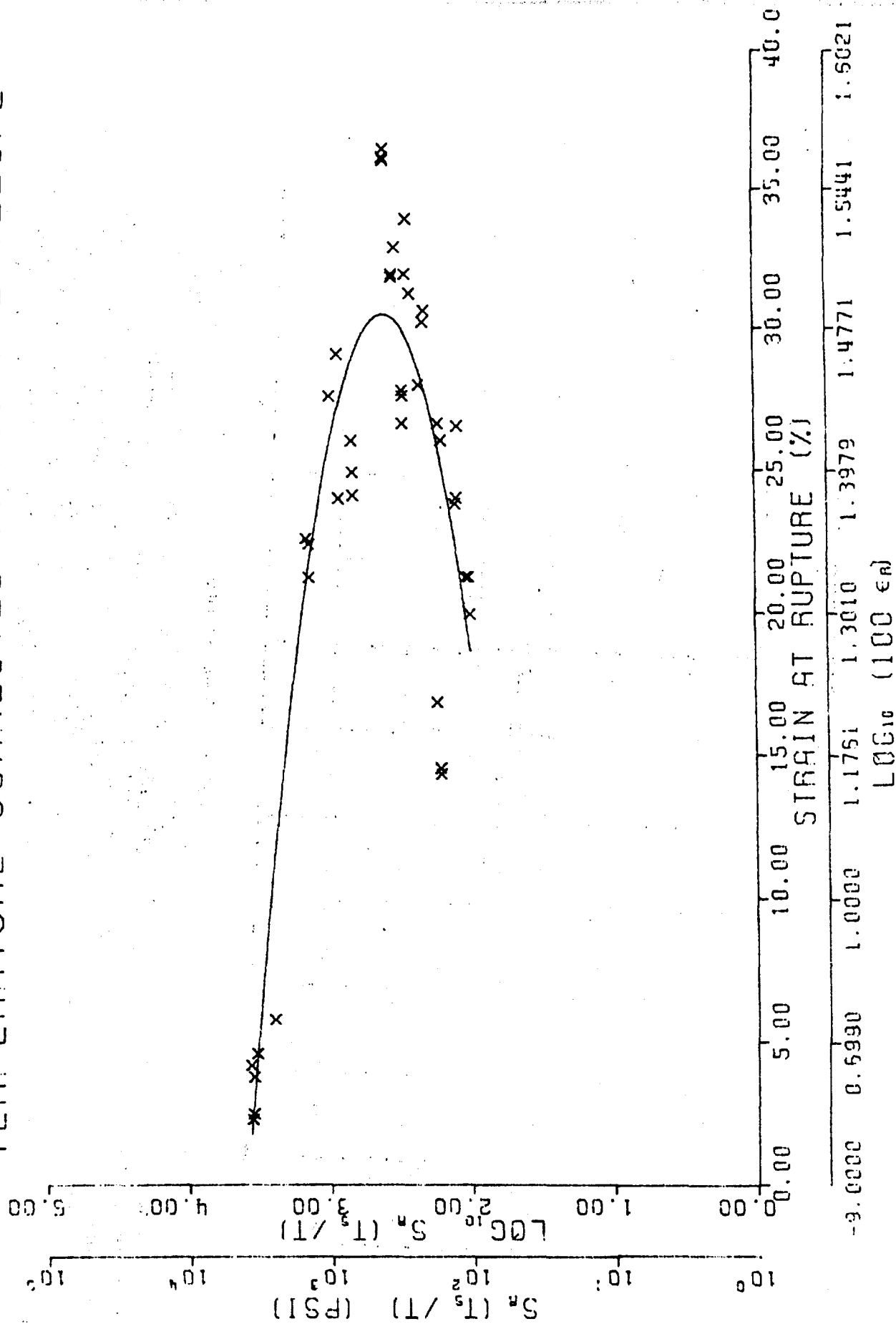


REG EQ	Y=0.5758 + 0.0042 (x)	CORRELATION	+0.6063
F RATIO	173.2488	SIG OF CORRELATION	Significant
DEG OF FREEDOM	1 and 298	STD ERROR OF y (Syx)	0.1357
SIG OF F	Significant	STD ERROR OF REG COEFF	0.0003
STD DEV OF y (sy)	0.1704	CALC "t", SLOPE	13.1623
n	300	"t" REQ'D FOR SIG at 95%	1.982
SPEC CONFIG	3.3" x 0.33" disc	STORAGE COND	Ambient Temp/RH
		TEST COND	Ambient Temp/RH

APPROVED, DAPF, JULY 70, LD.

Figure 71

TEMPERATURE CORRECTED FAILURE ENVELOPE



CODE

Stage 1 Wing 6, TP-H 1011, Failure Envelope
Figure 72

4
3
1

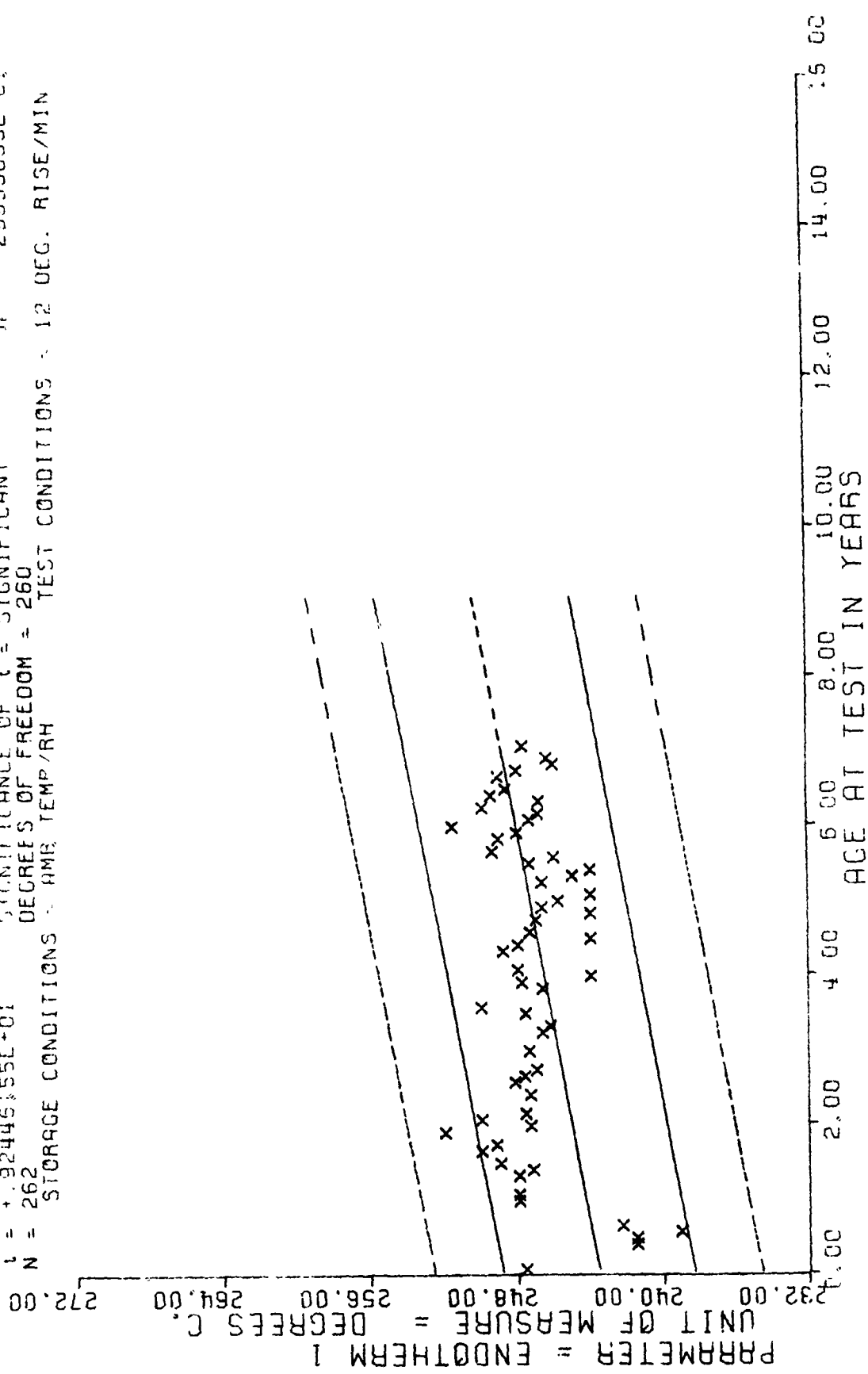
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SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
1.0	3	33.0	2	63.0	3	85.0	6	262	
5.0	9	36.0	5	64.0	2				
6.0	27	39.0	3	65.0	2				
7.0	11	40.0	4	66.0	3				
8.0	9	42.0	5	67.0	5				
12.0	3	43.0	2	68.0	3				
13.0	3	46.0	3	70.0	7				
16.0	5	47.0	5	71.0	5				
17.0	9	48.0	3	72.0	2				
18.0	2	49.0	5	73.0	3				
20.0	2	52.0	5	74.0	6				
21.0	5	53.0	1	75.0	9				
23.0	2	54.0	2	76.0	5				
24.0	3	55.0	3	77.0	5				
25.0	2	57.0	3	78.0	5				
26.0	5	58.0	2	80.0	3				
29.0	3	59.0	3	81.0	5				
31.0	5	60.0	5	82.0	3				
32.0	3	61.0	2	83.0	6				

Stage 1 Wing 6, TP-H 1011, DTA, Endotherm 1, 12 Degree Centigrade Rise/Min

$Y = (+.24305318E+03) + (+.61418336E-01) \times X$
 $F = +.35462916E+02$ SIGNIFICANCE OF F = SIGNIFICANT $G_1 = +.34462853E+01$
 $R = +.49737979E+00$ SIGNIFICANCE OF R = SIGNIFICANT $G_2 = +.66436872E-02$
 $t = +.92446155E+01$ SIGNIFICANCE OF t = SIGNIFICANT $G_3 = +.29955099E+01$
 $N = 262$ DEGREES OF FREEDOM = 260
 STORAGE CONDITIONS : AMB, TEMP/RH TEST CONDITIONS : 12 DEG. RISE/MIN



STAGE 1 WING 5, T-P-H 1011, DTG. ENDOTHERM 1, 12 DEGREE CENTIGRADE RISE/MIN.

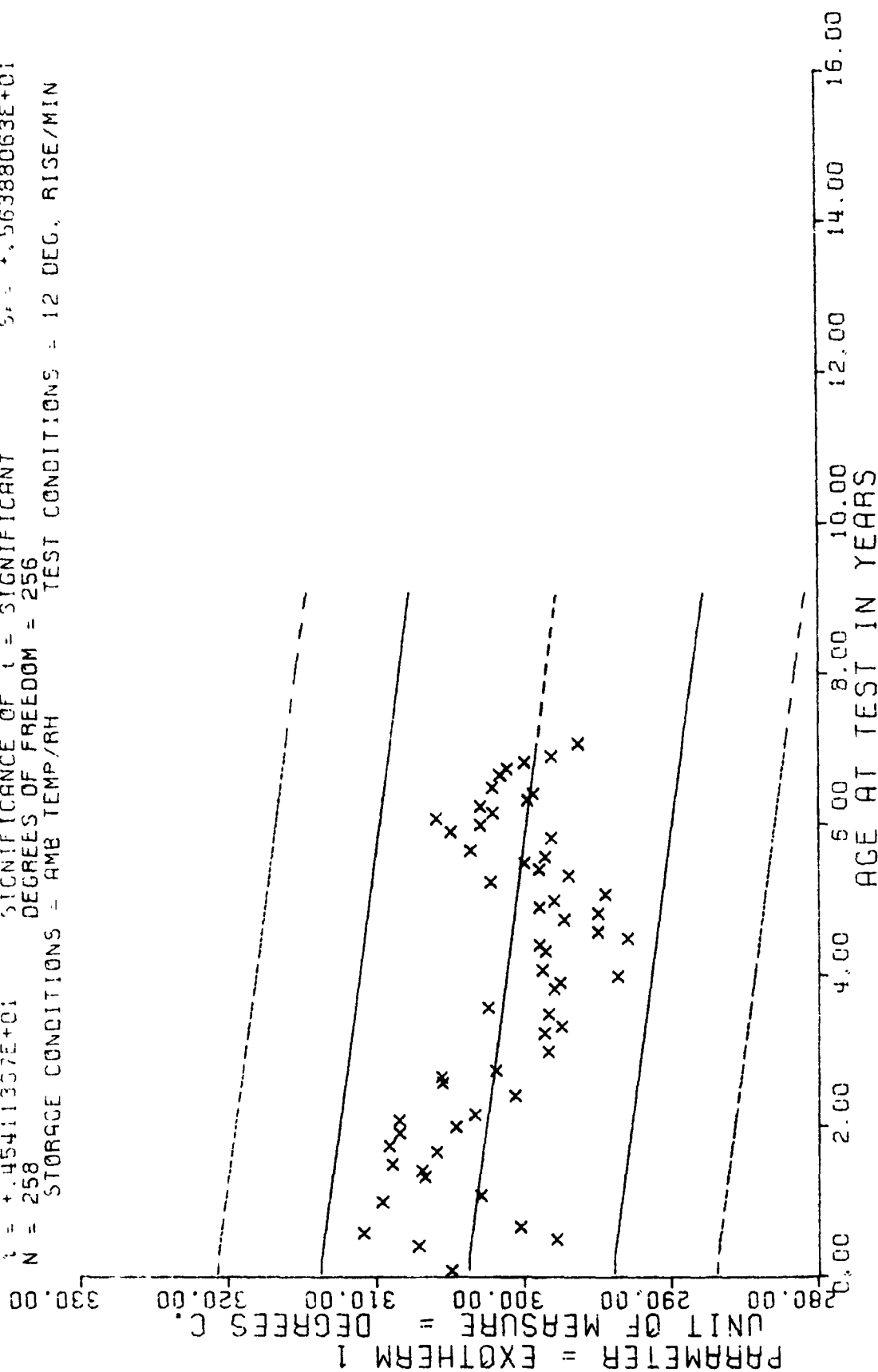
Figure 73

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
1.0	3	33.0	2	63.0	3	85.0	6
5.0	9	36.0	5	64.0	1		258
6.0	27	39.0	3	65.0	2		
7.0	11	40.0	4	66.0	3		
8.0	9	42.0	5	67.0	5		
12.0	3	43.0	2	68.0	3		
13.0	3	46.0	3	70.0	6		
16.0	5	47.0	5	71.0	5		
17.0	9	48.0	3	72.0	2		
18.0	2	49.0	5	73.0	3		
20.0	2	52.0	5	74.0	6		
21.0	5	53.0	1	75.0	9		
23.0	2	54.0	1	76.0	5		
24.0	3	55.0	3	77.0	5		
25.0	2	57.0	3	78.0	5		
26.0	5	58.0	2	80.0	3		
29.0	3	59.0	3	81.0	5		
31.0	5	60.0	4	82.0	3		
32.0	3	61.0	2	83.0	6		

Stage 1 Wing 6, TP-H 1011, DTA, Exotherm 1, 12 Degree Centigrade Rise/Min

$Y = (+.30396131E+03) + (-.57031399E-01) X$
 SIGNIFICANCE OF F = SIGNIFICANT
 SIGNIFICANCE OF R = SIGNIFICANT
 SIGNIFICANCE OF t = SIGNIFICANT
 N = 258
 DEGREES OF FREEDOM = 256
 STORAGE CONDITIONS = AMB TEMP/RH
 TEST CONDITIONS = 12 DEG. RISE/MIN



STAGE 1 WING C. IP-H 1011 DTG, EXOTHERM 1, 12 DEGREE CENTIGRADE RISE/MIN.

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
1.0	3	42.0	5	67.0	5
12.0	3	43.0	2	68.0	3
13.0	3	46.0	3	70.0	6
16.0	5	47.0	5	71.0	5
17.0	9	48.0	3	72.0	2
18.0	2	49.0	5	73.0	3
20.0	2	52.0	4	74.0	6
21.0	5	53.0	1	75.0	9
23.0	2	54.0	1	76.0	5
24.0	3	55.0	3	77.0	5
25.0	2	57.0	3	78.0	5
26.0	5	58.0	2	80.0	3
29.0	3	59.0	3	81.0	5
31.0	5	60.0	4	82.0	3
32.0	3	61.0	2	83.0	6
33.0	2	63.0	3	85.0	5
36.0	5	64.0	1		
39.0	3	65.0	2		
40.0	4	66.0	3		
					2)0

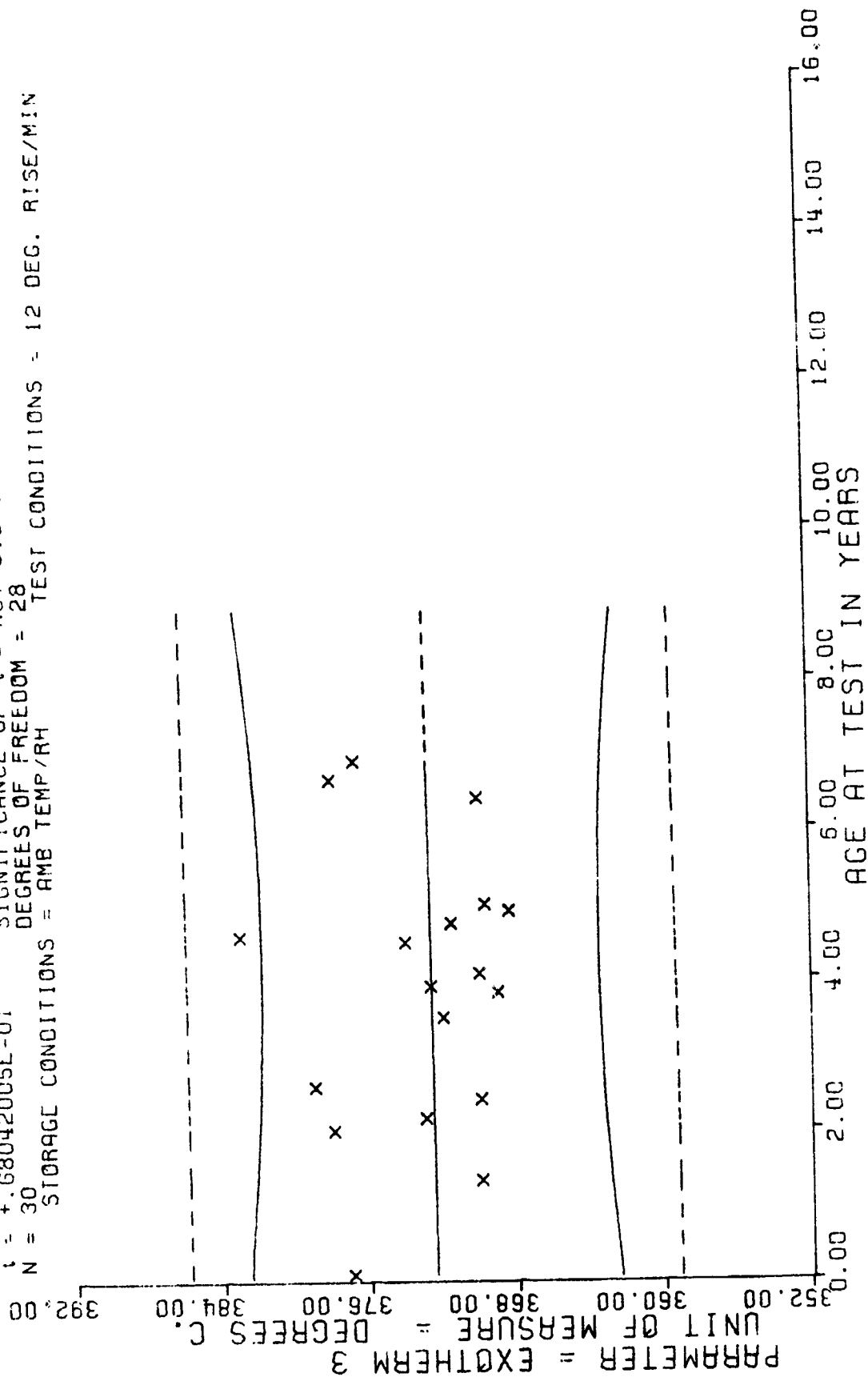
- 160 -

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples
1.0	1	49.0	1
16.0	1	54.0	1
24.0	1	55.0	1
26.0	1	57.0	2
29.0	1	59.0	3
31.0	1	60.0	3
42.0	3	77.0	1
46.0	2	80.0	1
47.0	3	83.0	3
			30

Stage 1 Wing 6, TP-H 1011, DTA Exotherm 3, 12 Degree Centigrade Rise/Min

$Y = (+.37255668E+03) + (+.28268118L-02) * X$
 $F = +.46297145E-02$ SIGNIFICANCE OF F = NOT SIGNIFICANT $G_1 = +.43640379E+01$
 $R = +.12857667E-01$ SIGNIFICANCE OF R = NOT SIGNIFICANT $S_0 = +.41545034E-01$
 $t = +.68042005E-01$ SIGNIFICANCE OF t = NOT SIGNIFICANT $S_F = +.444009164E+01$
 $N = 30$ DEGREES OF FREEDOM = 28
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = 12 DEG. RISE/MIN

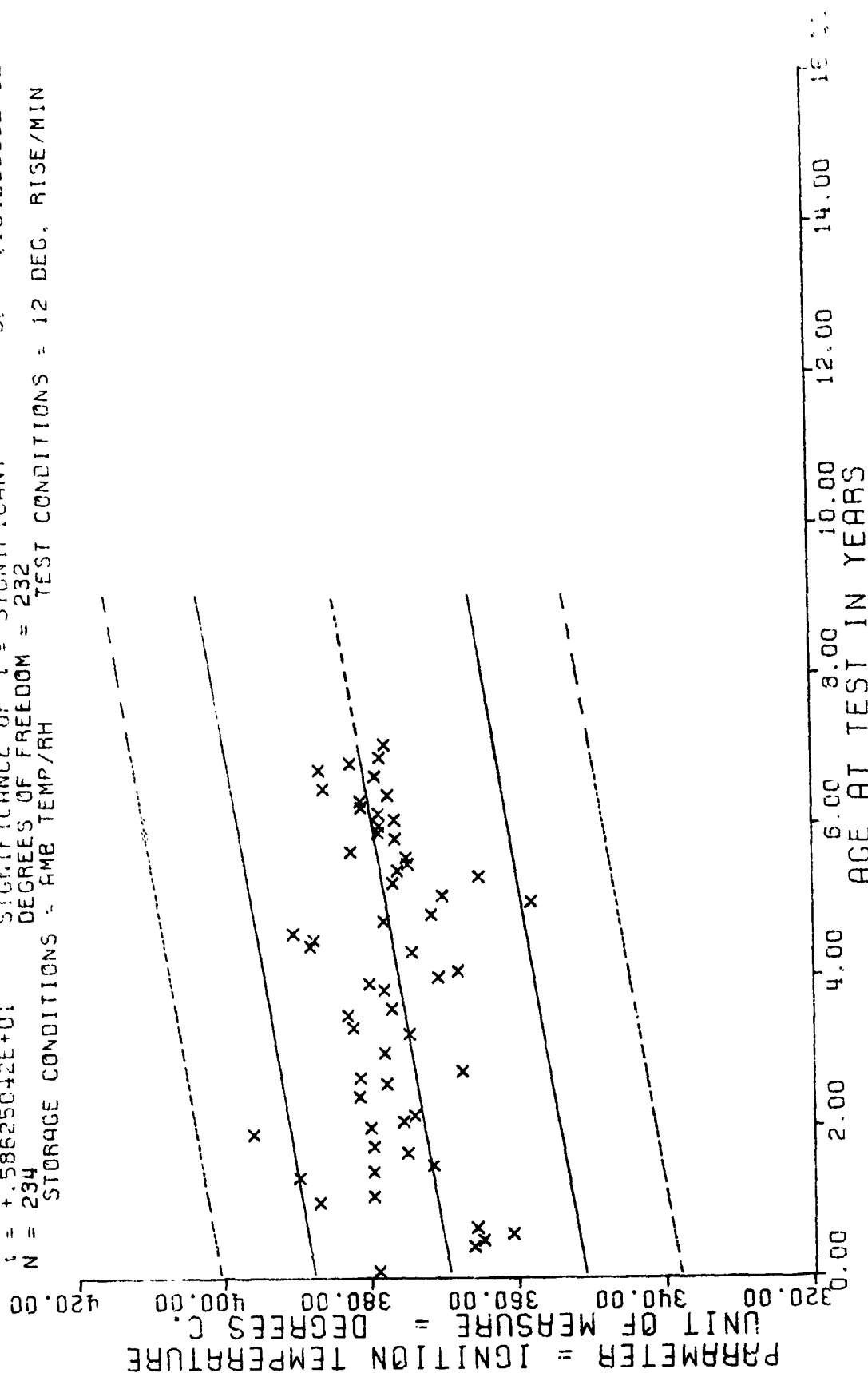


SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
1.0	2	36.0	5	66.0	3
5.0	9	39.0	3	67.0	5
6.0	27	40.0	4	68.0	3
7.0	11	42.0	2	70.0	7
8.0	9	43.0	2	71.0	5
12.0	3	46.0	1	72.0	2
13.0	3	47.0	2	73.0	3
16.0	4	48.0	3	74.0	6
17.0	9	49.0	4	75.0	9
18.0	2	52.0	5	76.0	5
20.0	2	53.0	1	77.0	4
21.0	5	54.0	2	78.0	5
23.0	2	55.0	3	80.0	2
24.0	2	57.0	1	81.0	5
25.0	2	58.0	2	82.0	3
26.0	4	60.0	2	83.0	3
29.0	2	61.0	2	85.0	6
31.0	4	63.0	3		
32.0	3	64.0	2		
33.0	2	65.0	2		
					234

Stage 1 Wing 6, TP-H 1011, DTA, Ignition Temperature, 12 Degree Cent Rise/Min

$Y = (+.36941243E+03) + (+.14013503E+00) * X$
 $F = +.34368955E+02$ SIGNIFICANCE OF F = SIGNIFICANT
 $R = +.35920416E+00$ SIGNIFICANCE OF R = SIGNIFICANT
 $t = +.58625042E+01$ SIGNIFICANCE OF t = SIGNIFICANT
 $N = 234$ DEGREES OF FREEDOM = 232
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = 12 DEG. RISE/MIN



STAGE 1 WING 6, TP-H 1011, OTA, IGNITION TEMPERATURE, 12 DEGREE CENT. RISE/MIN.

Figure 77

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
8.0	11	32.0	2	56.0	1	76.0	3
9.0	12	34.0	1	57.0	1	77.0	4
10.0	6	36.0	2	58.0	1	78.0	2
12.0	1	37.0	2	59.0	1	79.0	2
13.0	1	38.0	1	60.0	1	81.0	2
14.0	2	39.0	1	61.0	3	82.0	1
16.0	3	40.0	3	62.0	2	83.0	2
17.0	1	41.0	1	63.0	1	84.0	1
18.0	3	43.0	2	64.0	2	85.0	1
19.0	2	44.0	1	65.0	2	86.0	1
21.0	3	45.0	1	66.0	3	87.0	1
22.0	2	47.0	1	67.0	2		
24.0	1	48.0	1	68.0	2		
25.0	1	49.0	5	69.0	3		
26.0	2	50.0	3	71.0	4		
27.0	1	52.0	2	72.0	5		
28.0	1	53.0	2	73.0	2		
30.0	2	54.0	1	74.0	1		
31.0	1	55.0	2	75.0	2		
							149

Stage 1 Wing 6

TP-H 1011

Heat of Explosion

$F = +.49673155E+01$ SIGNIFICANCE OF F = SIGNIFICANT
 $R = +.18079473E+00$ SIGNIFICANCE OF R = SIGNIFICANT
 $t = +.22287475E+01$ SIGNIFICANCE OF t = SIGNIFICANT
 $N = 149$ DEGREES OF FREEDOM = 147
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH

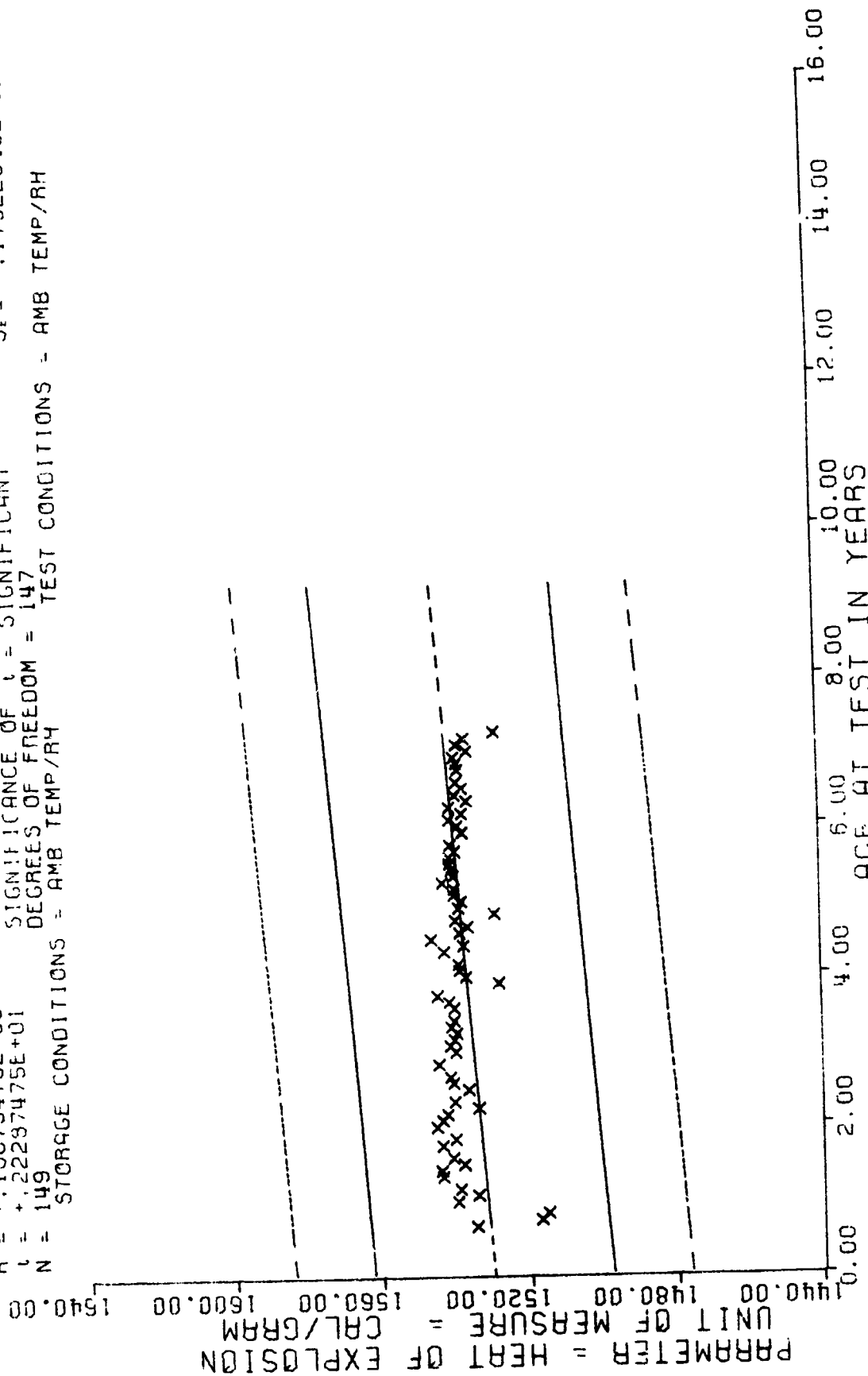


Figure 78

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
11.0	1	40.0	2	64.0	2
14.0	1	41.0	1	66.0	3
15.0	1	43.0	1	67.0	2
16.0	2	44.0	1	68.0	2
18.0	1	45.0	1	69.0	1
19.0	1	47.0	1	70.0	2
20.0	2	48.0	1	71.0	2
21.0	1	49.0	3	72.0	3
22.0	1	50.0	1	73.0	2
24.0	1	51.0	2	74.0	1
25.0	1	53.0	2	76.0	2
26.0	1	54.0	1	77.0	2
29.0	1	55.0	1	78.0	1
31.0	1	57.0	1	79.0	1
33.0	1	58.0	1	81.0	1
36.0	4	60.0	1	82.0	1
37.0	1	61.0	1		
38.0	2	62.0	2		
39.0	1	63.0	2		
					<u>79</u>

Stage 1 Wing 6 TP-H 1011 Maximum Pressure Pressure Time

$Y = (+.36847903E+04) + (+.70558462E+00) \times X$
 SIGNIFICANCE OF F = NOT SIGNIFICANT
 SIGNIFICANCE OF R = NOT SIGNIFICANT
 SIGNIFICANCE OF L = NOT SIGNIFICANT
 DEGREES OF FREEDOM = 77
 TEST CONDITIONS = 500 PSI INT PRES
 STORAGE CONDITIONS = AMB TEMP/RH

$F = +.37018440E+01$
 $R = +.21417428E+00$
 $L = +.13240176E+01$
 $N = 79$

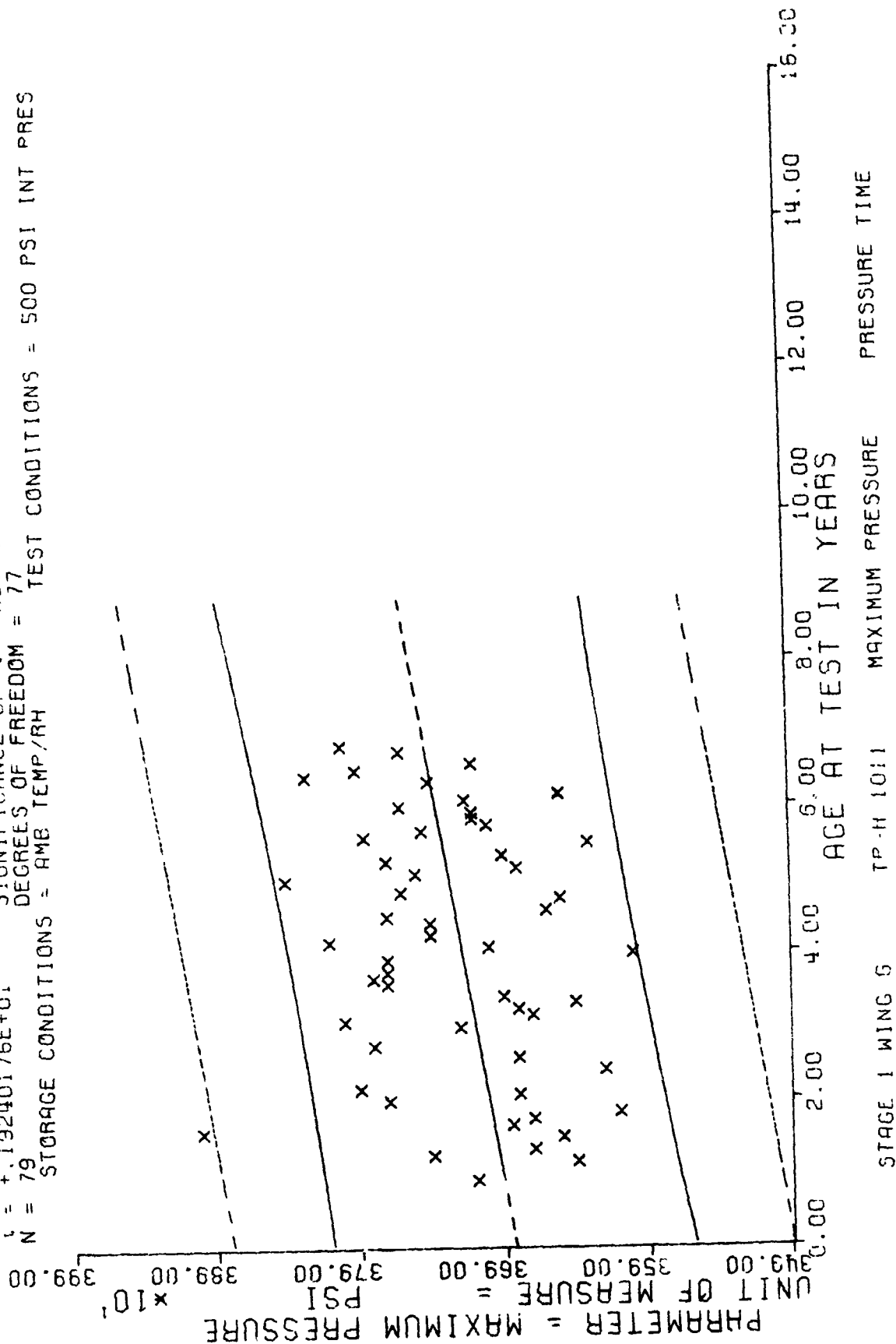


Figure 79

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
11.0	1	40.0	2	64.0	2
14.0	1	41.0	1	66.0	3
15.0	1	43.0	1	67.0	2
16.0	2	44.0	1	68.0	2
18.0	1	45.0	1	69.0	1
19.0	1	47.0	1	70.0	2
20.0	2	48.0	1	71.0	2
21.0	1	49.0	3	72.0	3
22.0	1	50.0	1	73.0	2
24.0	1	51.0	2	74.0	1
25.0	1	53.0	2	76.0	2
26.0	1	54.0	1	77.0	2
29.0	1	55.0	1	78.0	1
31.0	1	57.0	1	79.0	1
33.0	1	58.0	1	81.0	1
36.0	4	60.0	1	82.0	1
37.0	1	61.0	1		79
38.0	2	62.0	2		
39.0	1	63.0	2		

Stage 1 Wing 6 TP-H 1011 Time to Maximum Pressure Pressure Time

$Y = (+.62997181E+00) + (-.14396642E-04) \times X$
 SIGNIFICANCE OF F = NOT SIGNIFICANT
 SIGNIFICANCE OF R = NOT SIGNIFICANT
 SIGNIFICANCE OF t = NOT SIGNIFICANT
 DEGREES OF FREEDOM = 77
 TEST CONDITIONS = 500 PSI INT PRES
 STORAGE CONDITIONS = AMB TEMP/RH
 F = +.53694730E-02
 R = -.83503624E-02
 t = +.73276688E-01
 N = 79

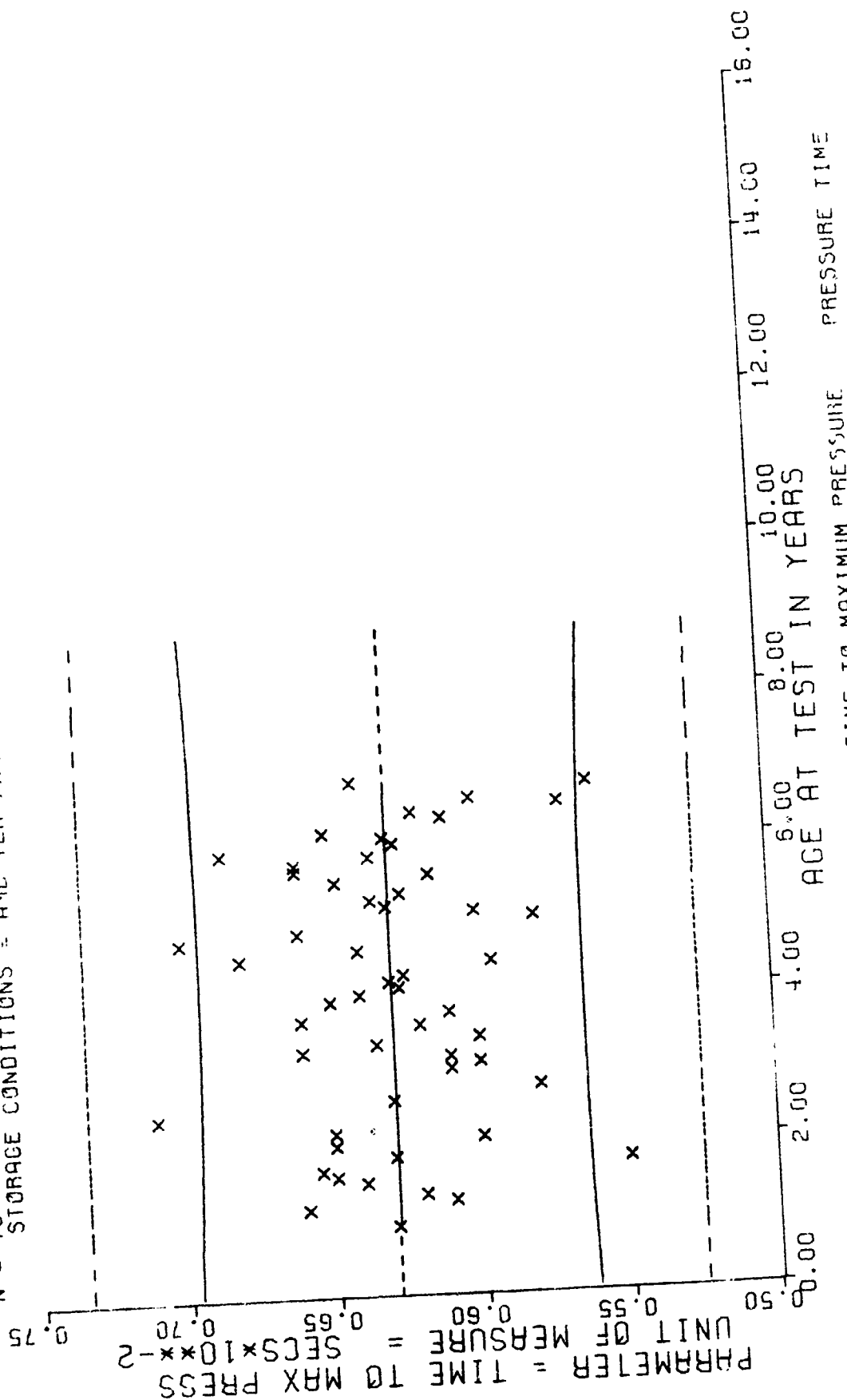


Figure 80

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
5.0	18	33.0	3	61.0	9
6.0	54	34.0	6	62.0	3
7.0	24	36.0	3	63.0	3
8.0	18	37.0	4	64.0	9
10.0	3	38.0	3	65.0	6
12.0	3	40.0	6	67.0	3
14.0	3	42.0	3	68.0	9
15.0	3	43.0	6	70.0	15
16.0	3	46.0	3	71.0	6
17.0	3	47.0	9	72.0	3
18.0	6	49.0	6	73.0	3
19.0	3	50.0	6	75.0	6
20.0	3	52.0	3	76.0	6
21.0	3	53.0	6	77.0	3
23.0	3	54.0	3	78.0	3
25.0	3	55.0	3	80.0	3
26.0	3	58.0	3	81.0	3
28.0	3	59.0	3		
31.0	3	60.0	3		
					337

Stage 1 Wing 6

TP-H 1011

Burning Rate

$Y = (+.27128577E+00) + (+.37947426E-03) \times X$
 $F = +.39477953E+03$ SIGNIFICANCE OF F = SIGNIFICANT
 $R = +.73549796E+00$ SIGNIFICANCE OF R = SIGNIFICANT
 $t = +.13869059E+02$ SIGNIFICANCE OF t = SIGNIFICANT
 $N = 337$ DEGREES OF FREEDOM = 335
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = 1000 PSI

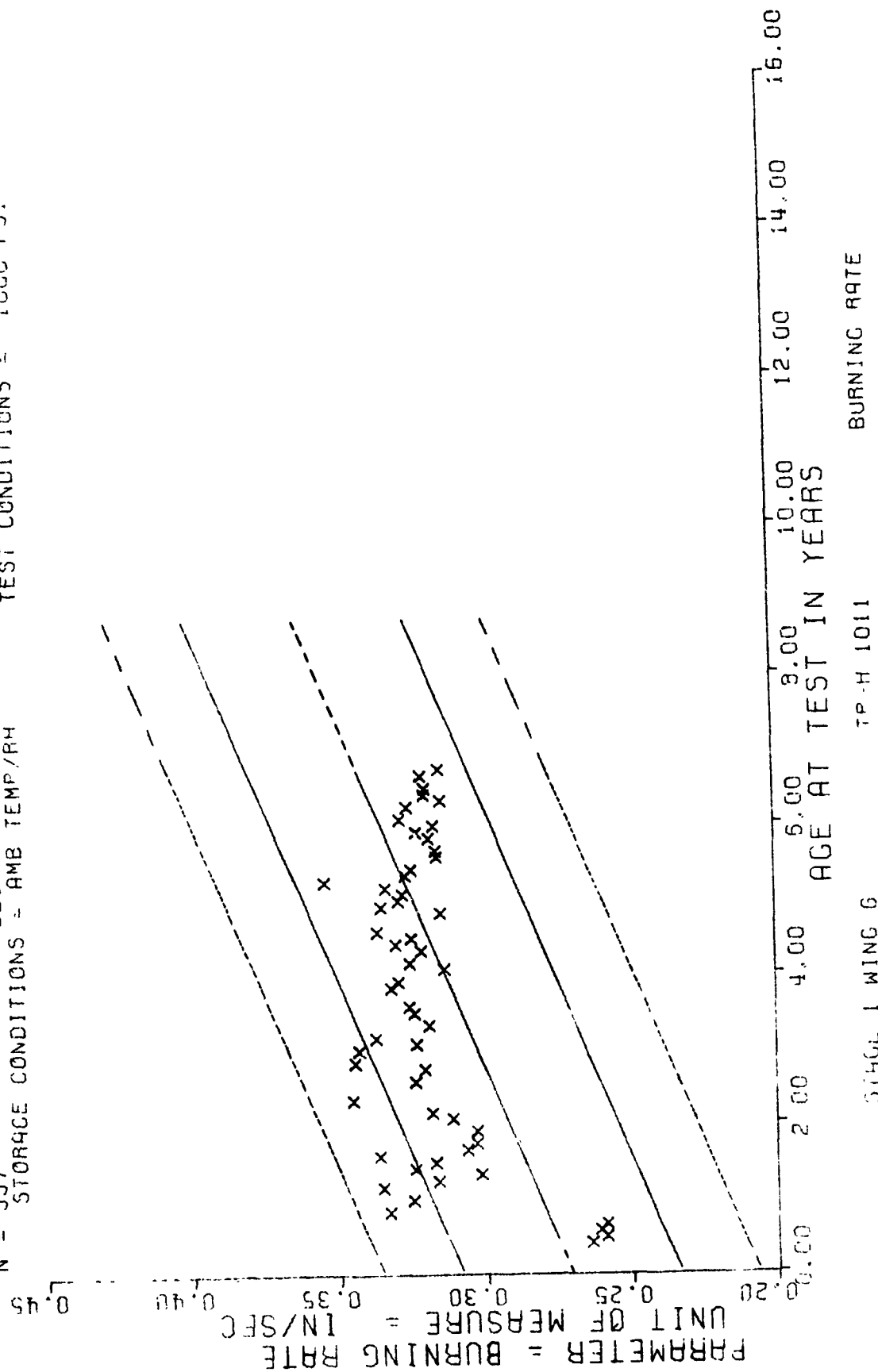
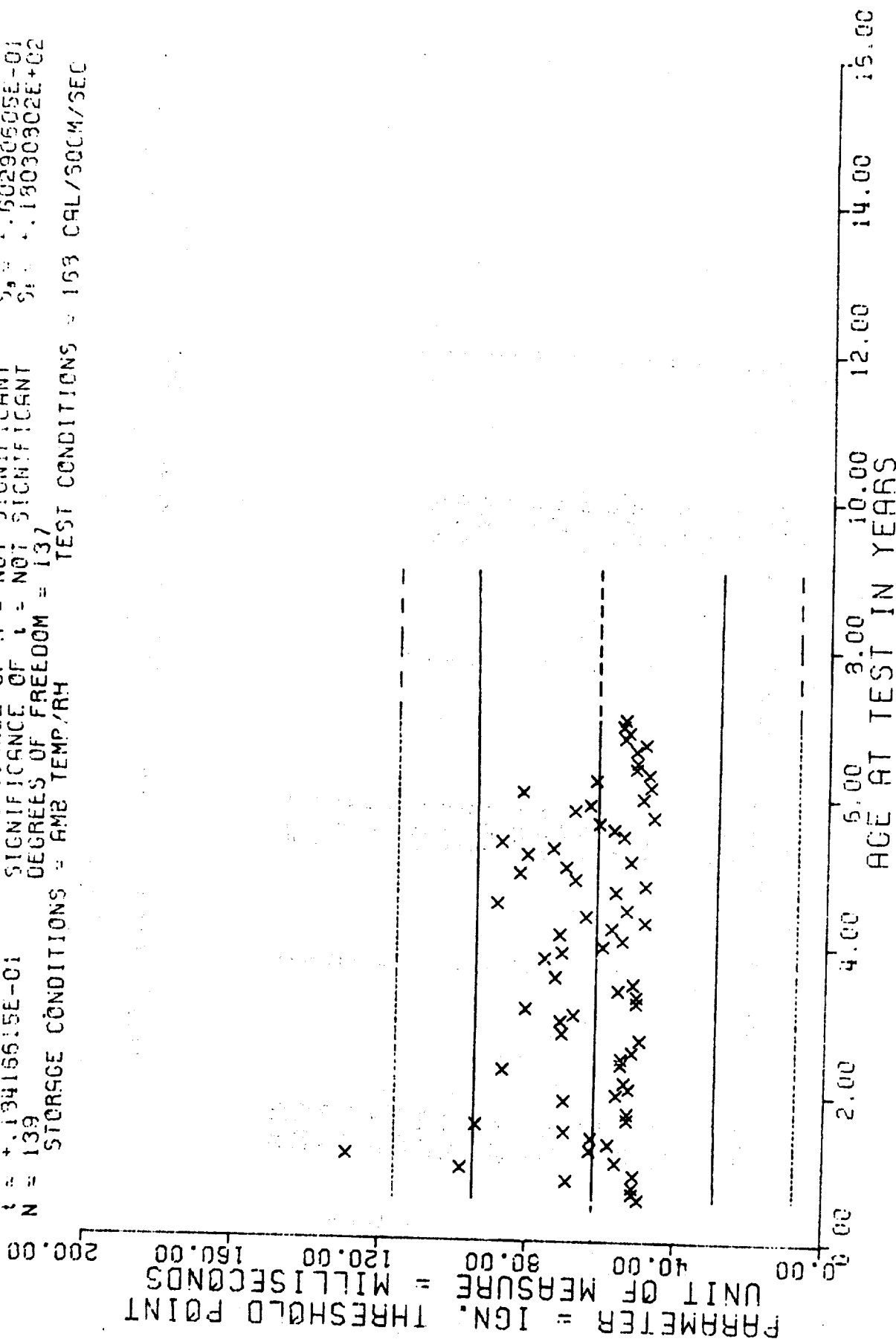


Figure 81

[illegible]

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$F = +.33917173E-03$
 $R = +.15734357E-02$
 $t = +.13416615E-01$
 $N = 139$
 STORAGE CONDITIONS = AMB TEMP/RH
 DEGREES OF FREEDOM = 137
 TEST CONDITIONS = 163 CAL/50CM/SEC
 $Y = (+.62069004E+02) + (+.11103492E-02) \times X$
 SIGNIFICANCE OF F = NOT SIGNIFICANT
 SIGNIFICANCE OF R = NOT SIGNIFICANT
 SIGNIFICANCE OF t = NOT SIGNIFICANT
 $\sigma^2 = +.17965376E+02$
 $S_y = +.60290505E-01$
 $S_x = +.13030302E+02$



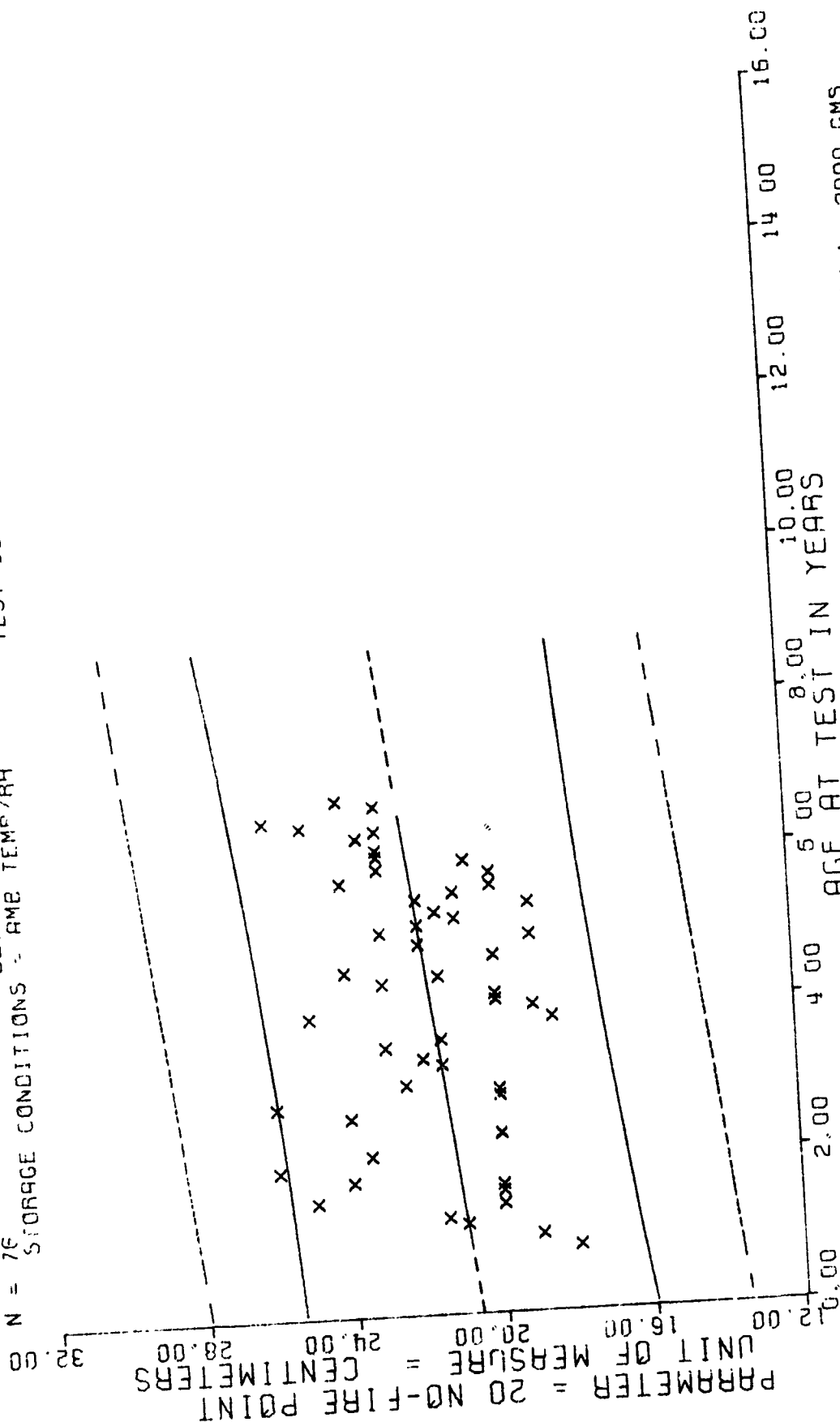
STAGE 1 WING C. TR-H 1011, IGNITABILITY. IGN THRESHOLD POINT. 163 CAL/50 CM/SEC

Figure 82

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
10.0	1	42.0	1	66.0	2
12.0	1	43.0	2	67.0	1
14.0	1	46.0	2	68.0	2
15.0	2	47.0	1	69.0	1
17.0	1	48.0	3	70.0	3
18.0	1	49.0	2	71.0	3
19.0	1	50.0	1	72.0	2
20.0	2	52.0	1	73.0	1
21.0	1	53.0	2	75.0	2
23.0	1	54.0	1	76.0	1
25.0	2	56.0	1	77.0	1
28.0	1	58.0	1	78.0	1
31.0	1	59.0	1	80.0	1
33.0	1	60.0	1	81.0	1
34.0	1	61.0	3		
35.0	1	62.0	1		
36.0	2	63.0	2		
39.0	2	64.0	1		
40.0	1	65.0	2		
					76

Stage 1 Wing 6, TP-H 1011, Impact Sensitivity, 20 No-Fire Point (CM) 2000 GMS

$Y = (+.2074428E+02) + (+.20704755E-01) * X$
 SIGNIFICANCE OF F = NOT SIGNIFICANT
 SIGNIFICANCE OF R = NOT SIGNIFICANT
 SIGNIFICANCE OF t = NOT SIGNIFICANT
 DEGREES OF FREEDOM = 74
 TEST CONDITIONS = AMB TEMP/RH
 N = 76
 STORAGE CONDITIONS = AMB TEMP/RH
 F = +.22325773E+01
 R = +.17113268E+00
 t = +.1434181E+01
 S_F = +.24457625E+01
 S_R = +.13856923E-01
 S_t = +.24253096E+01



STAGE 1 WING 6, TP-H 1011, IMPACT SENSITIVITY, 20 NO-FIRE POINT (CM.), 2000 GMS

Figure 83

Age <u>(months)</u>	Nr Samples	Age <u>(months)</u>	Nr Samples	Age <u>(months)</u>	Nr Samples
4.0	66	51.0	15	71.0	10
5.0	108	52.0	30	72.0	20
6.0	123	53.0	15	74.0	35
7.0	114	55.0	15	75.0	20
8.0	114	56.0	10	76.0	20
9.0	117	57.0	5	77.0	15
10.0	108	58.0	15	78.0	5
11.0	111	59.0	25	79.0	10
12.0	75	60.0	30	80.0	10
13.0	78	61.0	25	81.0	5
14.0	104	62.0	15		
15.0	94	63.0	40		
16.0	78	64.0	25		
17.0	91	65.0	20		
18.0	83	66.0	25		
19.0	41	67.0	30		
20.0	15	68.0	30		
22.0	15	69.0	50		
24.0	25	70.0	30		
					2,498

Hardness

$F = +.43729129E+01$ SIGNIFICANCE OF F = SIGNIFICANT
 $R = -.41819903E-01$ SIGNIFICANCE OF R = SIGNIFICANT
 $t = +.20911511E+01$ SIGNIFICANCE OF t = SIGNIFICANT
 $N = 2498$ DEGREES OF FREEDOM = 2496
 STORAGE CONDITIONS = AMB TEMP/RH TEST CONDITIONS = AMB TEMP/RH

$$Y = (+.65031332E+02) + (-.42199526E-02) * X$$

$G_1 = +.24008348E+01$
 $S_1 = +.20180046E-02$
 $S_2 = +.23992149E+01$

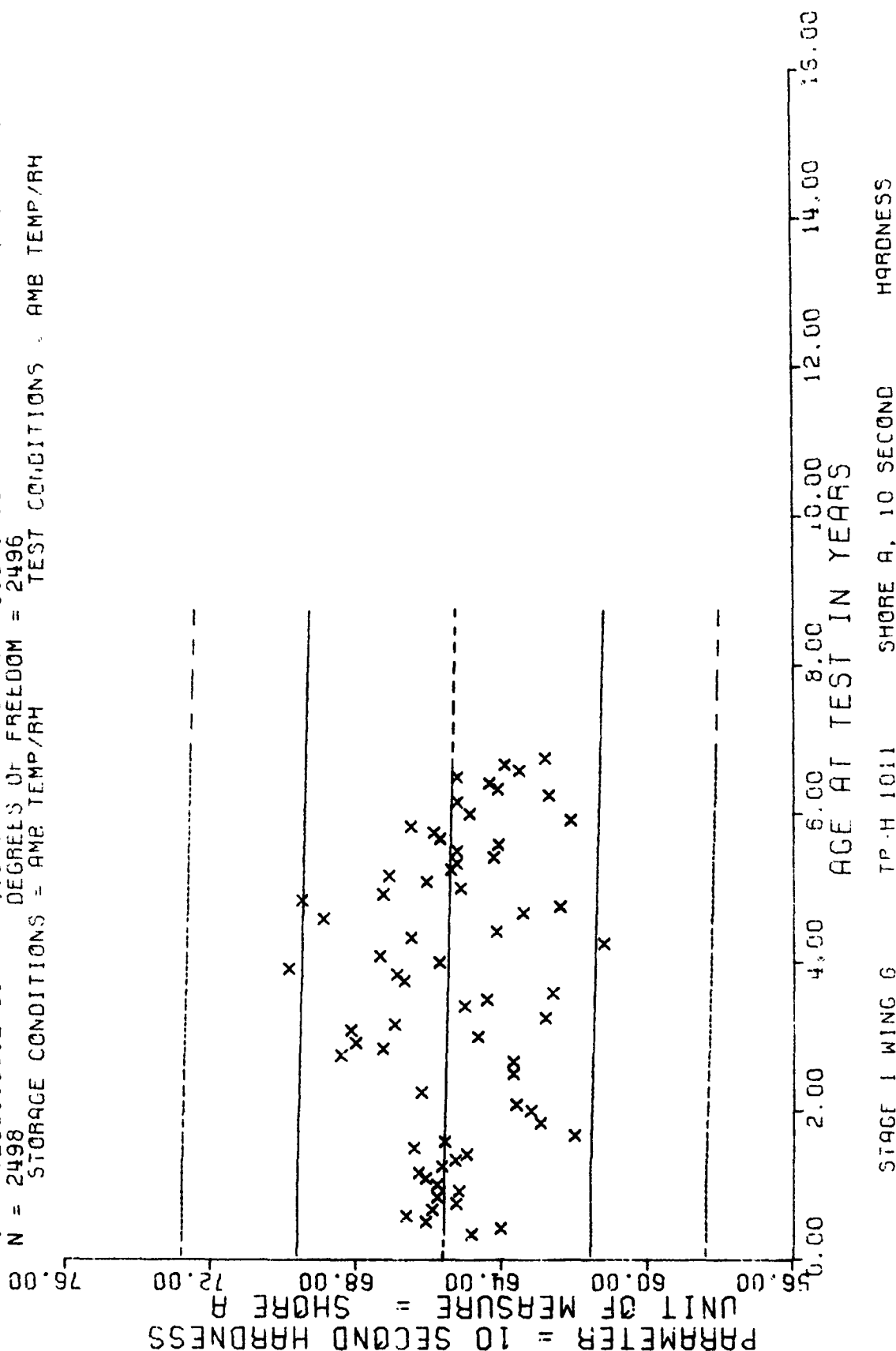
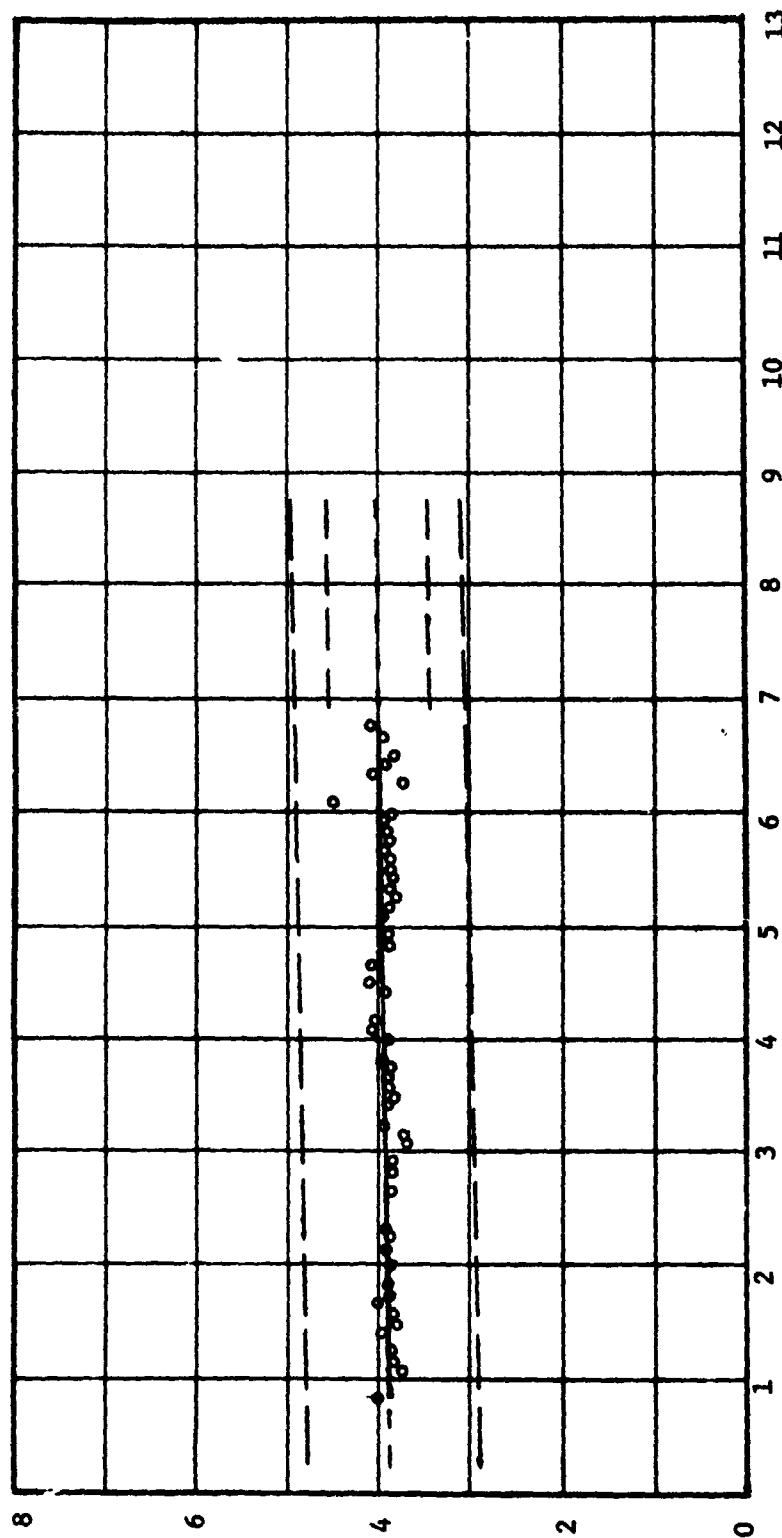


Figure 84

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
10.00	4	28.00	4	48.00	8	66.00	4
13.00	4	32.00	4	49.00	12	67.00	8
14.00	4	34.00	4	50.00	8	68.00	4
15.00	4	35.00	8	53.00	12	69.00	8
17.00	4	37.00	4	54.00	4	70.00	8
18.00	4	38.00	8	56.00	4	71.00	16
19.00	8	39.00	4	58.00	4	72.00	4
20.00	4	41.00	4	59.00	4	73.00	8
21.00	4	42.00	4	61.00	8	75.00	4
22.00	4	43.00	4	62.00	8	76.00	8
24.00	4	44.00	4	63.00	8	77.00	8
26.00	4	45.00	4	64.00	4	78.00	4
27.00	4	46.00	4	65.00	12	80.00	4
						81.00	4
							304

Stage I Wing 6, TP-H 1011, Sol Gel, Weight Swell Ratio



REG EQ	$Y = 3.8415 + 0.0020 (X)$	CORRELATION	+ 0.1265
F RATIO	4.9099	SIG OF CORRELATION	Significant
DEG OF FREEDOM	1 and 302	STD ERROR OF $y (S_{y,x})$	0.3085
SIG OF F	Significant	STD ERROR OF REG COEFF	0.0009
STD DEV OF $y (\sigma_y)$	0.3105	CALC "1", SLOPE	2.2158
n	304	"1" REQ'D FOR SIG at 95%	1.960
SPEC CONFIG	$1/2" \times 1/2" \times 1/2"$	STORAGE COND	Ambient
		TEST COND	77°F, ambient RH

Stage I Wing 6, TP-H 1011, Sol Gel, Weight Swell Ratio

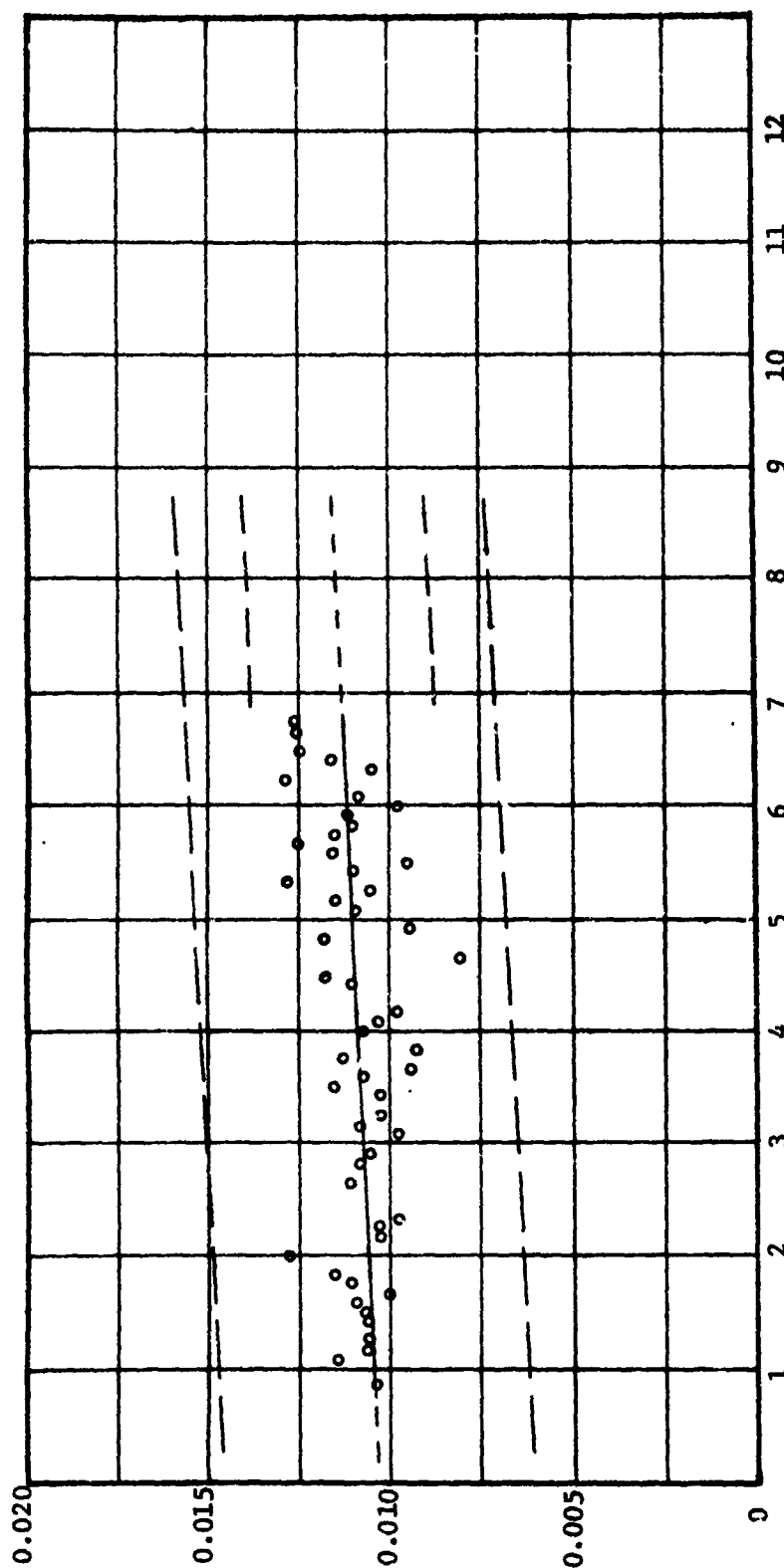
Figure 85

APPROVED, DAPF, JULY 70, LD.

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
10.00	4	32.00	4	49.00	12	67.00	8
13.00	4	34.00	4	50.00	8	68.00	4
14.00	4	35.00	8	53.00	12	69.00	8
15.00	4	37.00	4	54.00	4	70.00	8
17.00	4	38.00	8	56.00	4	71.00	16
18.00	4	39.00	4	58.00	4	72.00	4
19.00	8	41.00	4	59.00	4	73.00	8
20.00	4	42.00	4	61.00	8	75.00	4
21.00	4	43.00	4	62.00	8	76.00	8
22.00	4	44.00	4	63.00	8	77.00	8
24.00	4	45.00	4	64.00	4	78.00	4
26.00	4	46.00	4	65.00	12	80.00	4
27.00	4	48.00	8	66.00	4	81.00	4
28.00	4						304

Stage I Wing 6, TP-H 1011, Sol Gel, Cross-Link Density



PARAMETER Cross-Link Density
UNIT OF MEASURE Milliequivalents/cm³

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13

--- REGRESSION LINE	REG EQ $Y = 0.010260 + 0.000012(X)$	CORRELATION $+0.1690$
--- 90-90 TOLERANCE BAND	F RATIO 8.8788	SIG OF CORRELATION Significant
--- 3 SIGMA BAND	DEG OF FREEDOM 1 and 302	STD ERROR OF y ($S_{y.x}$) 0.001422
o FAILURE CRITERIA	SIG OF F Significant	STD ERROR OF REG COEFF 0.000000
o RANGE OF DATA	STD DEV OF y (σ_y) 0.001440	CALC "t", SLOPE 2.9797
o MEAN VALUE OF DATA:	n 304	"t" REQ'D FOR SIG at 95% 1.960
o OAMA MEAN	SPEC CONFIG $1/2" \times 1/2" \times 1/2"$	STORAGE COND Ambient
		TEST COND $77^\circ F$, ambient RH

Stage I Wing 6, TP-H 1011, Sol Gel, Cross-Link Density

Figure 86

APPROVED, DAPF, JULY 70, LD.

SAMPLE SIZE SUMMARY

<u>Age</u> <u>(months)</u>	<u>Nr</u> <u>Samples</u>	<u>Age</u> <u>(months)</u>	<u>Nr</u> <u>Samples</u>	<u>Age</u> <u>(months)</u>	<u>Nr</u> <u>Samples</u>	<u>Age</u> <u>(months)</u>	<u>Nr</u> <u>Samples</u>
10.00	4	32.00	4	49.00	12	67.00	8
13.00	4	34.00	4	50.00	8	68.00	4
14.00	4	35.00	8	53.00	12	69.00	8
15.00	4	37.00	4	54.00	4	70.00	8
17.00	4	38.00	8	56.00	4	71.00	16
18.00	4	39.00	4	58.00	4	72.00	4
19.00	8	41.00	4	59.00	4	73.00	8
20.00	4	42.00	4	61.00	8	75.00	4
21.00	4	43.00	4	62.00	8	76.00	8
22.00	4	44.00	4	63.00	8	77.00	8
24.00	4	45.00	4	64.00	4	78.00	4
26.00	4	46.00	4	65.00	12	80.00	4
27.00	4	48.00	8	66.00	4	81.00	4
28.00	4						4
							304

Stage I Wing 6, TP-H 1011, Sol Gel, % Extractables

PARAMETER Extractables
UNIT OF MEASURE Percent by Weight

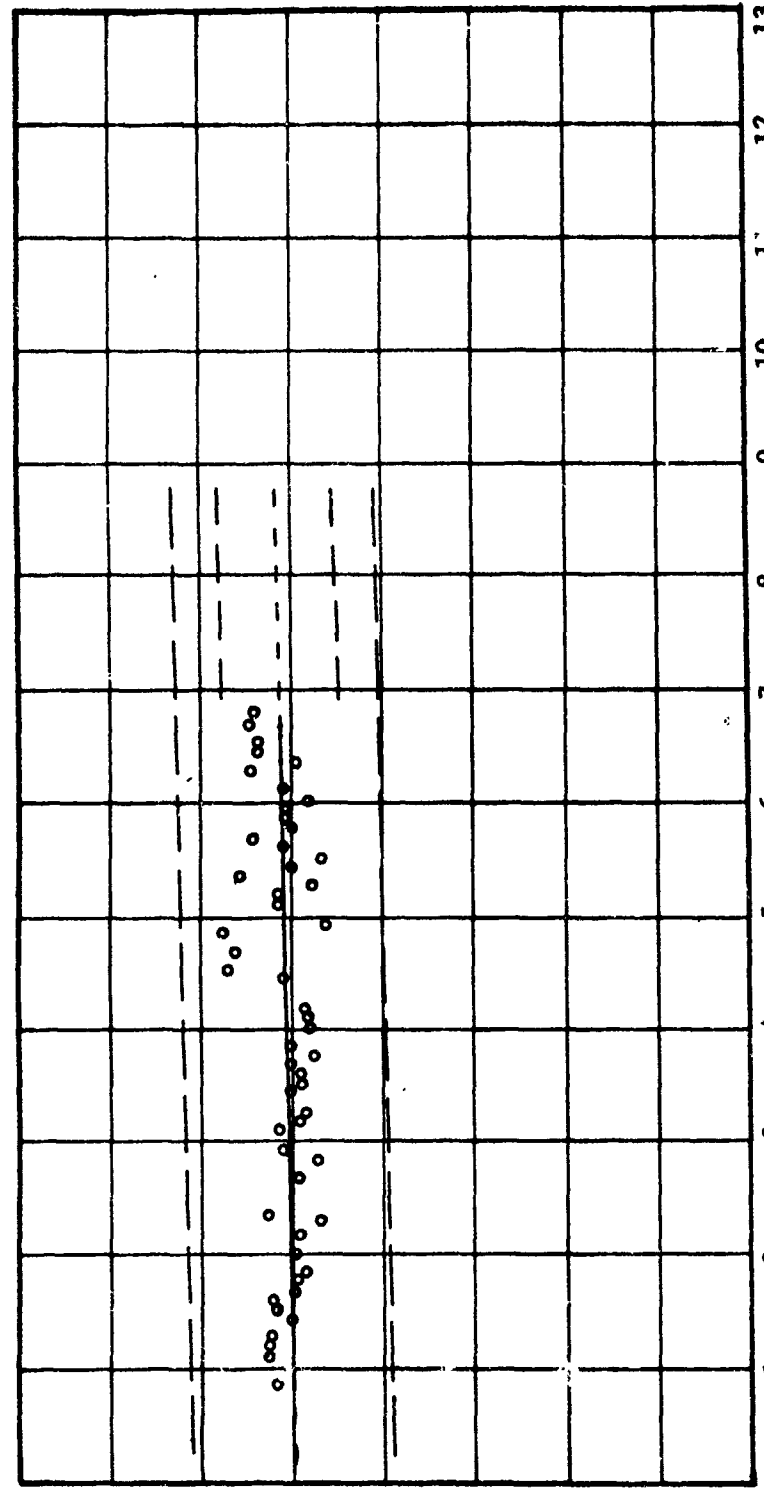
12

9

6

3

0



--- REGRESSION LINE
--- 90-90 TOLERANCE BAND
--- 3 SIGMA BAND
FAILURE CRITERIA
RANGE OF DATA
MEAN VALUE OF DATA:
OOAMA MEAN

APPROVED, DAPF, JULY 70, LD.

STORAGE TIME (YEARS)

REG EQ $Y=7.4764 + 0.0027 (X)$

F RATIO 2.938

DEG OF FREEDOM 1 and 302

SIG OF F Not Significant

STD DEV OF $y (\sigma_y)$ 0.5485

n 304

SPEC CONFIG $1/2" \times 1/2" \times 1/2"$

CORRELATION +0.0982

SIG OF CORRELATION Not Significant

STD ERROR OF $y (s_{y_x})$ 0.5468

STD ERROR OF REG COEFF 0.0016

CALC "t", SLOPE 1.7139

"t" REQ'D FOR SIG at 95% 1.960

STORAGE COND Ambient

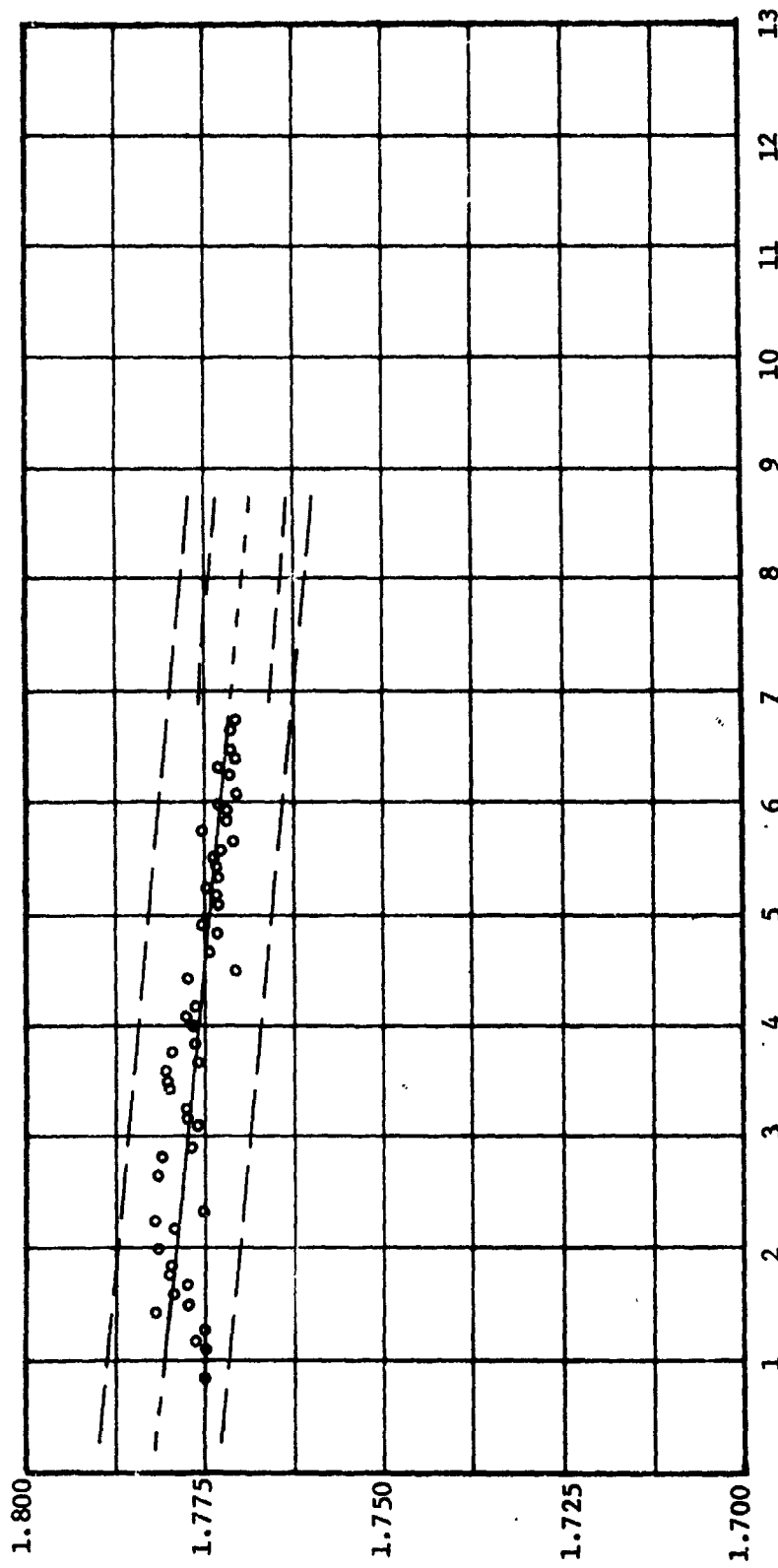
TEST COND 77°F, Ambient RH

Stage I Wing 6, TP-H 1011, Sol Gel, % Extractables
Figure 87

SAMPLE SIZE SUMMARY

Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples	Age (months)	Nr Samples
10.00	4	32.00	4	49.00	12	67.00	8
13.00	4	34.00	4	50.00	8	68.00	4
14.00	4	35.00	8	53.00	12	69.00	8
15.00	4	37.00	4	54.00	4	70.00	8
17.00	4	38.00	8	56.00	4	71.00	16
18.00	4	39.00	4	58.00	4	72.00	4
19.00	8	41.00	4	59.00	4	73.00	8
20.00	4	42.00	4	61.00	8	75.00	4
21.00	4	43.00	4	62.00	8	76.00	8
22.00	4	44.00	4	63.00	8	77.00	8
24.00	4	45.00	4	64.00	4	78.00	4
26.00	4	46.00	4	65.00	12	80.00	4
27.00	4	48.00	8	66.00	4	81.00	4
28.00	4						304

Stage I Wing 6, TP-H 1011, Sol Gel, Density



REGRESSION LINE	REG EQ Y = 1.781996 - 0.000125(X)	CORRELATION	- 0.6689
90-90 TOLERANCE BAND	F RATIO 244.5280	SIG OF CORRELATION	Significant
3 SIGMA BAND	DEG OF FREEDOM 1 and 302	STD ERROR OF Y (S _{y.x})	0.002787
FAILURE CRITERIA	SIG OF F Significant	STD ERROR OF REG COEFF	0.000010
RANGE OF DATA	STD DEV OF Y (σ _y) 0.003744	CALC "t", SLOPE	15.6374
MEAN VALUE OF DATA:	n 304	"t" REQ'D FOR SIG at 95%	1.960
OQAMA MEAN	SPEC CONFIG 1/2" x 1/2" x 1/2"	STORAGE COND	Ambient
APPROVED, DAPF, JULY 70, L.D.		TEST COND	77°F, ambient RH

Stage I Wing 6, TP-H 1011, Sol Gel, Density
Figure 88

DISTRIBUTION

	<u>NR</u> <u>COPIES</u>
OOAMA	
MMCT	1
MMNT	1
DDC (TISIR) Cameron Station, Alexandria, VA 22314	2
SAMSO, Norton AFB, CA 92409	
MNNP	1
TRW Systems, Norton AFB, CA 92409	
Attn: Mr. W. Emrick 524/410	1
AFPRO, Thiokol Chemical Corporation	2
Wasatch Division	
P. O. Box 524	
Brigham City, Utah 84302	
(Cy to R. E. Keating)	
AFRPL (MKPB) Edwards AFB, CA 93523	1
SAC (LGMB) Offutt AFB, NB 68113	1
U. S. Naval Ordnance Station, Indian Head, MA 20640	1
Attn: Dr. James H. Wiegand	
Fleet Support Dept., Propulsion	
System Development Division, Code FS7	
CPIA, John Hopkins University	1
Attn: Dr. P. L. Nichols	
8621 Georgia Avenue	
Silver Springs, MA 20910	
Naval Plant Branch Representative	1
Attn: Mr. David W. Pratt	
P. O. Box 157	
Bacchus Works	
Magna, Utah 84044	